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Paper Chemistry Institute to Erect New Home

Construction of Building to House Graduate School of Lawrence College at Appleton, Wis., Now One Year Old, To Be Completed by September, Ready for Fall Semester—One Wing Will House Digester Room and Another the Research Library—Special Laboratories for Paper Testing, Research, Organic Chemistry and Colloid Chemistry

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 9, 1931—Bids have been called by March 16 for a new building to house the Institute of Paper Chemistry of Lawrence College, Appleton, Wis., the graduate school now one year old. Construction is to be completed by September when the Fall seamster opens.

Partial specifications announced by President Henry M. Wriston, provide for a building 114 by 50 feet in size, with two wings attached, one 80 feet deep and the other 63 feet deep. It will be located on the new south campus of the college, opposite the new gymnasium erected recently through the generosity of L. M. Alexander, president of the Nekoosa-Edwards Paper Company.

One of the wings will house a digester room 30 by 80 feet in size, with semi-commercial equipment for experimental purposes. Another entire wing will house the research library, already considered the finest and most complete body of technical literature on paper chemistry in the United States. There will also be special laboratories for paper testing, one for research, another for organic chemistry, and an additional one for colloid chemistry. Offices will be established for the director, Dr. Otto Kress, the technical director, librarian, and other academic officers.

Trustees of the institute authorized immediate construction of the new building because of its urgent need, and payment is to be made entirely from gifts. Those participating in this action are: Ernst Mahler, Kimberly-Clark Corporation, president of the trustees; D. C. Everest, Marathon Paper Mills Company; Monroe A. Wertheimer, Thilmany Pulp and Paper Company; Dan K. Brown, Neenah Paper Company; L. M. Alexander, Nekoosa-Edwards Paper Company; Hugh Strange, John Strange Paper Company.

New Forest Nursery Planned

Immediate establishment of the new United States forest nursery at Rhinelander, Wis., is contemplated by E. W. Tinker, regional forester. He has announced that G. W. Jones, of Haugen, Mont., has been placed in charge. Mr. Jones will spend about two months visiting other federal nurseries and arranging for equipment before taking active charge at Rhinelander. Twenty acres of land will be cleared at the start, but eventually the nursery will be built to a capacity of 10,000,000 seedling trees a year. Since last year 201,328 acres of cutover and tax delinquent land have been acquired by the federal forestry service and the eventual plan is to have 1,000,000 acres under cultivation for reforestation. About 700,000 trees will be planted in Wisconsin and Upper Michigan at the request of the George Washington Memorial Association, which sent Mr. Tinker a check for $1,044 to carry on this work.

Federal Forestry Record Established

By planting 15,846 acres to trees in the Lake States area during 1930, a new record for federal forestry regions of the entire country was established, according to Mr. Tinker. About 10,000,000 trees were planted, grown from seed in Minnesota and Michigan nurseries. The cost was less than $4 per acre, due to the large acreage planted, the use of tractors and plows for ground preparation, and taking advantage of savings made possible by previous experience in planting. The Knutson-Vandenburg Act, passed by Congress last June, has given impetus to reforestation work, since it is planned to expand the reforestation work to 40,000,000 acres annually. The department expects to have 4,000,000 two-year-old Wisconsin grown trees available for planting by the Fall of 1932.

Shipment of pulp wood from the woods has been hampered greatly because of the open winter, with logging conditions described as the worst there have been in 25 years. Considerable of the logs will have to be left until next winter before removal, it is estimated in some sections.

Consolidated Mills Fine Safety Records

One entire year has now passed since the Interlake Pulp and Paper Company division of the Consolidated Water Power and Paper Company, at Appleton, Wis., had a lost time accident. The 225 employees, in their struggle for a perfect year, won out and now have at least three weeks additional to the good. The record started February 16, 1930, and has exceeded any previous safety accomplishment in the history of the company. The wood room, with its many opportunities for injury among the crew of 42 men, has rounded out two years without an accident. The electric department and boiler house have exceeded six years. The Stevens Point mill of the Consolidated group also is out after honors, having operated since August, 1930 without a lost time accident.

New Riverside Warehouse Nearly Completed

Construction will be completed soon on the new warehouse of the Riverside Paper Corporation, Appleton, Wis. The building is one story high, 47 by 60 feet, and of brick. It will add about

(Continued on page 68)

Pennsylvania Mills Experience Better Demand

Encouraged by Brighter Outlook Fine Paper Manufacturers Return to Five Day Week Schedule of Production—Philadelphia Distributors More Optimistic Now That Spring-Time and Easter Are Near—Paper Stock Situation Continues Irregular.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 9, 1931.—Pennsylvania paper manufacturers report slightly better demand and return to a five day week schedule of production for those grades of papers that have been more steady than general lines. This applies to the fine paper branch of the industry rather than to coarser papers, which have been subjected to drastic reduction to clear out old stocks.

Conditions in the distributive branch have improved. It is expected that the spring market will give an opportunity to clear the way for fresh stocking. Building papers show slightly the opening of outdoor work in construction, though roofings are draggy. Tissues are lower fractionally, with demand lagging. Glassines are moving in fair volume, despite growing competition of cellophane. Waxed and grease-proof papers show signs of revived interest. There has been more demand for folding boxes and containers.

While demand for paper stock is spotty, with mills buying practically at their own figures, the rag division is most affected by the dragginess of the present market. Prices of paper stocks hold at rock bottom values to which mill demands have leveled them, but domestic rags have declined to lower records within the last ten days, after a listless market that prevailed since the first of the year. Nearly all grades of domestic rags have fallen. The bagging grades, however, hold better. A few mills have been making inquiries on the better grades of paper stock in the past few days.

Wholesale Waste Merchants Banquet

"Ladies Night" was a gala occasion for the Philadelphia wholesale waste trade, as the members of the Wholesale Waste Merchants Association of Philadelphia dined and danced and enjoyed a diversified program of vaudeville and musical talent which held until the small hours of the morning. This, the second banquet given over to the entertainment of the fair sex in the history of the organization, was staged at the Benjamin Franklin Hotel on March 4, and was confined exclusively to the members of the association and their fair guests. President Thomas A. Kenny, of the International Trading Company, and Secretary William J. McGarity, Sr., of the Penn Paper and Stock Company, were responsible for the arrangements of one of the most delightful evenings ever held by the organization. William L. Simmons, dean of the wholesale paper stock industry here, and head of John Simmons Sons Company, was an honored associate, and he with William J. McGarity, Sr.; Thomas A. Kenny; George French, of Castle & Overton; Edward Orr, of the Pioneer Paper Stock Company; Charles J. McNichol, P. De Santi & Co.; William Lemly, Sr., and his associate and son, William Lemly, Jr.; Harry Golen, Hancock Paper Stock Company; Finlay Morrow, M. O. Raiguel Company; Anthony Massington; William Davis, Sobel & Davis; P. Mossman; Alexander Di Santi; George A. D'Ienno; Harry Bailey, Hemmingway Company; Ben Badger, son of the first president of the old Paper Stock Dealers Association; R. Di Biasso and John Costello, all members of the original Philadelphia Paper Stock Dealers Association, founded more than 25 years ago, represented the "Old Guard" of the paper stock division. All these associates were accompanied by their wives. From the younger ranks of the paper stock trade attending were William J. McGarity, Jr., Penn Paper and Stock Company, and Mrs. McGarity; David Dixon and William McNamee, of the staff of the Penn Paper and Stock Company, and wives; Miss Rose Salinger and her escort from Samuel Ingber & Co.; Arthur Feierman, and Mr. and Mrs. M. Moss, of that firm; Harry Sobel, Sobel & Davis; Jack Mossman, Saul Mossman, Albert Mossman and Maurice Mossman, of P. Mossman & Co., and their wives. These associates of the present Wholesale Waste Merchants Association of Philadelphia represent the houses that were founded from twenty-five to seventy-five years ago and were charter members of the old Philadelphia Paper Stock Dealers Association, whose banquets have always been memorable occasions in the industry, attracting hundreds of out of town guests yearly.

Paper Manufacturers Co. to Build

With the growing business of the recently added gummed paper converting department, the Paper Manufacturers Company, 5th and Willow streets, will build additional quarters to be devoted to this division of the business. About a year ago the firm opened its gummed tape and stay paper department, after several months of experimentation with these products so as to perfect an unusually excellent quality of paper and adhesive characteristic and the result was the perfection of the Kraft-Weld gummed sealing tapes and box makers stay papers and the Perfection label of similar lines. All the properties which the firm bought several years ago extending along Callowhill street will be torn down and the way cleared for erection of the new structure. The firm will, on completion of the building program, own almost an entire city square adjoining railroad sidings. The present half million dollar structure was built about eight years ago. It is the plan of the head of the firm, Frank A. O'Neill, to further expand production of gummed papers by the addition of Perfection and Kraft Weld flat gummed papers in white and colors. These gummed papers are for use by the printing, lithographing, and label manufacturing industries.

Schuylkill Paper Co. Takes New Quarters

Larger quarters for the executive and sales offices of the Schuylkill Paper Company, now located at 215 South 5th street, have been acquired by the fine paper concern, which enjoys a broad distribution among large publishing firms. The new quarters are located on the second floor of the building at 437 Chestnut street, where will be established the offices of Frederic S. Balch and James Andrews, of the firm. Warehouses are maintained by the firm in New York City, Camden and Philadelphia. The new location will be ready for occupancy by March 21.

Curtis & Bros. Staff To Travel

William Hendrie Lloyd, until recently sales manager and secretary of the Dill & Collins Company, and who a few weeks ago joined the staff of the fine paper manufacturing concern of Curtis & Bro., Newark, Del., and Philadelphia, is now covering the western trade as representative of the firm. Irwin Megargee, who has been connected with the Philadelphia offices in the Public Ledger Building, is also in the field covering the distributive trade for the line of papers made by the Newark plant. The mills were involved in equity proceedings in the Delaware courts. Upon request of the officials of the company, its president, Charles M. Levis, and its treasurer and general manager, Herbert W. Mason, appointed receivers pending adjustment of the financial difficulties of the Aldine Trust Company, of Philadelphia, which failed a few weeks ago and which

was the principal banking connection of the paper making concern. Assets of the firm are considerably in excess of liabilities, the action of the courts being taken to protect its interests until the bank's difficulties are adjusted. The firm also owns the Mount Holly Mill of Mount Holly, Pa., and C. W. Berl is devoting his time exclusively to representing the fine papers made in the Mount Holly plant as traveling representative.

Protest Pulp Rates

Former Congressman George W. Edmonds, manager of the Philadelphia Ocean Traffic Bureau, with headquarters in the Bourse, last week presented to the executive committee of the Port of Philadelphia Ocean Traffic Bureau, a protest against the rate on wood pulp charged by the railroads for shipments from the port of Philadelphia, which are alleged to be discriminatory to the local port. Upon presentation the action taken by the executive committee was the passing of a resolution authorizing the Bureau to take up the protest with the railroads in an effort to obtain adjustment. The rate matter resulted from the report of the Bureau's activities for February, submitted by Ex-Congressman Edmonds. He dealt specifically with the rate on wood pulp, stressing the differences in rates between Philadelphia and Wilmington and Wilmington and Baltimore. The rate from Baltimore to Wilmington, a distance of seventy miles, is 9½ cents per 100 pounds, and from Philadelphia to Wilmington, a distance of only 29 miles, the rate is also 9½ cents per hundred. Because of the shorter haul it is contended that the rate is unfair to the port of Philadelphia. A similar comparison is made between the wood pulp rates between Baltimore and York, Pa., and those obtained between Philadelphia and York.

John Costello Features Japanese Rags

John Costello, of 222 Chestnut street, who for many years has been linked with the paper mill supply trade of the Quaker City, has developed a specialized business in Japanese rags and is now representing the Universal Trading Company, of Kobe, Japan. These rags are especially adapted for wiping purposes and a broad demand has kept the shipping departments of the local representative active throughout the season. Mr. Costello reports that the wiping rag market is particularly active and about the most satisfactory division of the rag trade. The demand for imported wipers is holding well, despite the general depression in this branch of the industry and rising prices.

Paper Supplies for Post Office Dept.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 11, 1931.—The Post Office Department will receive bids on March 31 for the following paper supplies for the fiscal year beginning July 1.

12,000 sets gummed labels
11,200 rolls paper tape.
1,200 dozen adhesive transparent paper tape.
105,700 rolls white computing machine paper.
18,000 dozen white paper tablets.
196,000 sheets light weight black carbon paper.
2,047,000 sheets standard weight black carbon paper.
2,577,000 sheets heavy weight black carbon paper.
781,000 sheets medium weight black carbon paper.
7,000,000 printed facing slips.
1,000,000 tag board manila cards.
2,228,000 plain white index bristol cards.
1,000,000 white blank examination cards.
1,250,000 white bristol board cards.
476,000 blank guide cards.
51,000 pressboard guide cards.
232,000 plain manila folders.
5,000 sets alphabetical index sheets.
132,000 pieces news board, chipboard or straw board.
196,000 buff blotting paper.
250,000 rolls tissue toilet paper.

Shipping Rates in Russian Pulpwood

[FROM OUR REGULAR CORRESPONDENT]

OGDENSBURG, N. Y., March 9, 1931.—Another view of the controversy over shipping rates for Canadian and Russian pulpwood has been brought out by George S. Kerr and T. P. Altimas, directors of the Canadian Pulpwood Association, who declared that if no special tariff had been established by the railroads for handling the Russian product the same amount of pulpwood would have been shipped through Sorel and Three Rivers, but it would have been the Canadian brand. They claim that the profits connected with routing the imported product were pocketed by an American mill broker who contracted to receive it and then sold it through the Watertown district at a lower price than it was possible to sell the Canadian product of the same quality. Following the controversy started by this action on the part of the railway all water and rail rates were discontinued although this did not occur until navigation had closed and all the Russian wood was delivered. The only rate remaining in effect at this time is the nineteen cent per hundredweight rate which has been in force all along for pulp wood handled at the Port of Sorel.

Both of these men feel that it was not necessary for the railroads to reduce the rate in order to insure movement of the pulpwood through Quebec as with the water and rail rate to Watertown and the ocean rate to Canadian ports cheaper than the rate to New York they could not figure out any way in which the imported product could be moved through the Port of New York anywhere more economical than through Sorel. It was pointed out also that pulpwood going to the Fulton county district can be sent in on canal barges from the Hudson River much cheaper than it could possibly be sent in by rail from any port but it was not a question of these mills. About 50,000 cords of the imported wood were disposed of in the Watertown district and no railroads had ever attempted to compete with barge canal rates. These men declared that they were at a loss to understand the attitude of the railroads and that Canadian ports will suffer greatly now that other ways have been found of bringing pulpwood into this country.

It is also claimed that while freight rates on pulpwood remain as fixed now it will be impossible for Canada to compete in the American market. During the recent war freight rates are said to have increased 110 per cent in that country and have never been reduced despite the fact that the price of pulpwood has been declining continually and it is necessary to dispose of it for about one-half of what it brought when the rates were fixed.

Japanese Paper Industry Dull

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 11, 1931.—The continued dullness in the Japanese paper market and the heavy restrictions on output which are now being enforced indicate that production of both pulp and paper during the coming quarter will be somewhat less than during the current period according to a report from Trade Commissioner Steintorf, at Tokyo.

The report states that general business conditions continue to be very unfavorable, but the excessive stocks are gradually being reduced, and the mills are enforcing the compulsory storage plan, which should have a beneficial effect on prices. Quotations on pulpwood continue to decline, but pulp and paper prices are a little stronger.

Sells Bankrupt Stock of Cascade Mills

PORTLAND, Ore., March 7, 1931.—The Kaplam Paper Company of Seattle has taken over the bankrupt stock of the Cascade Paper Mills which closed its plant at Tacoma, last year, and is putting on an intensive advertising campaign by mail to sell this merchandise which includes fine book stock, bond papers of all weights, wrapping paper for soap and similar products, drawing paper, manilas, non-fading poster, catalogue stock, adding machine, blanking and other kinds for business needs.

Ontario Paper Manufacturers Fairly Active

Orders Generally Reported To Be Following Closely On Mechanical Operations—Book Paper Mills Said To Be Best Employed of Fine Paper Group—Outlook for Paper Board Industry Apparently Brightening—Tissues and Toilets Quite Active

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, March 9, 1931—While February saw some slight improvement in wholesale paper sales in Ontario, March has opened up quietly. The general testimony is, however, that the situation is gradually improving and the market developing a firmness that has not been experienced in several months past. There is quite a fair demand for most lines of fine papers and while orders are not being booked for large tonnages, the number of smaller accounts is turning out satisfactorily. Most of the houses, while having their quiet two or three weeks at a time, have been able to show fairly nice turnovers from month to month and on the whole there has been comparatively little to complain of. There is still a disposition on the part of the paper consumer trade to buy the cheaper grades of fine paper and this has meant that coated stock has suffered somewhat. Book paper is in quite good demand and there is a fair call for writing, bonds and ledgers. Envelope stock is backward and envelope manufacturers report rather limited business.

In the manufacturing field there is a fair degree of activity, although very few of the mills have orders booked ahead for more than a week or two. Less difficulty, however, is being experienced in keeping the machines busy, although orders are still following pretty close on mechanical operations in practically all of the mills. Book mills, perhaps, are about the best employed of the fine paper group. One or two of the board mills are fairly well employed, but others are down two or three days a week on an average. The outlook for the board mills, however, appears to be brightening. Light weight paper mills are doing a nice business and there has been some improvement in glassine, greaseproof and waxing lines. Tissue and toilet mills are quite active. In the paper converting section operations are light with a limited demand for blank books, office stationery, envelopes and similar lines. The coarse paper market can hardly be said to be satisfactory, general retail and wholesale conditions not yet warranting heavy sales of wrapping and paper bags. On the whole the paper situation throughout the province is taking on a buoyancy that augers well a satisfactory volume of business as soon as Spring opens.

Great Lakes Co. Fails to Meet Interest

Although its earnings position is understood to have been maintained, on account of its poor current position the Great Lakes Paper Company, Ltd., has defaulted on the interest on its 6 per cent first mortgage bonds, due March 1. Investment bankers representing the company have written to holders of these bonds stating that failure to meet the coupons is attributed to the unsatisfactory conditions now prevailing in the news print industry.

Fort Frances Mill Reopens

Closed down for three months, with the exception of two weeks early in February, the paper mill of the Ontario and Minnesota Power Company, at Fort Frances resumed operations on March 2. In February only three days a week were worked, but it could not be learned at present writing if a six-day week schedule would be maintained now. The Ontario and Minnesota Power Company, a Backus subsidiary, was placed in voluntary receivership by Edward W. Backus, president, in the Federal Court at Minneapolis and it was explained at the time that the receivership would not hamper operations of the mill at Fort Frances and that plans for meeting the company's financial obligations were under discussion. W. F. Shafer, manager of the Great Lakes Paper Company of Fort William, stated that he had no authority to discuss the financial affairs of the company, but he added that he had received no intimation that there would be any interruption in the production of the plant at Fort William, which is now running at a minimum capacity of five days per week. Interest on the bonds of the Fort William Paper Company were due at the beginning of March, but the company has sixty days to meet the interest payments. Plans for doing this are said to be under way.

Provincial Earnings Down a Little

The annual report of Provincial Paper, Ltd., was sent out a few days ago from the head office in Toronto. A favorable showing is made by the company for 1930. Operating profits of $995,747 compare with $1,136,087 in the previous year. After deducting depreciation of $250,000 and mortgage interest of $229,559, there remained $616,188 available for dividends, equivalent to $14.80 per share of preferred and $2.71 per share of common. A dividend of $1.25, the first since the formation of the present company as a successor to Provincial Paper Mills in 1927, was declared, requiring $125,000. After deducting this dividend there remained a surplus of $146,188, bringing total surplus to $672,430. Declaration of the dividend on the common stock is of special interest in view of the fact that all the outstanding 100,000 shares are owned by Abitibi Power and Paper Company. A feature of the report was an increase in net working capital to a new high level in the company's history at $2,208,509, as against $2,142,422 a year ago, with a ratio of 6.4 to 1 as between current liabilities, compared with a ratio of 5.1 to 1. This improvement is due to an increase in cash from $243,687 to $334,400, accompanied by a decrease in payables from $455,339 to $310,144.

Tax Agreement Reached at Soo

The city of Sault Ste. Marie, Ont., and the Abitibi Power and Paper Company, have finally reached an agreement which has been signed by both parties and which has also received the seal of approval of the Royal Bank of Canada. This agreement replaces the twenty-year agreement on assessment between the city and the company which expires this year. Under its terms the paper company is required to place the sum of $55,000 with the Royal bank to be held in trust. On June 15 half that sum, $27,500, will be paid to the city tax collector by the bank. After July 1 the sum of $4,583.33 will be paid to the paper company for each calendar month from July to December providing they produce, during each month, in the Sault mill 2,600 tons of news print. This paper must be completely manufactured at the Sault from raw materials.

News Print Investigation Urged

Investigation by the Ontario Government into the constitution of the Newsprint Institute of Canada was urged by General Hogarth, Port Arthur, speaking at the debate in the Legislature this week. Such an investigation, he declared, should be undertaken, with a view to recovering the 500,000 tons of news print business lost to Ontario last year. He outlined the unsettled state of the industry in Northern Ontario, mentioning the fact of the mills running only part time capacity and others which have been shut down. If means could be found to recover lost business in news print, it should be distributed in a fair and equitable way among the different mills, he said.

Notes and Jottings of The Trade

Due to conditions in the news print industry the Abitibi Magazine, house organ of the Abitibi Power and Paper Company, which

has been published from Toronto for the past couple of years, has ceased to appear. It is hoped that the publication, which was an exceptionally good one, will resume at a later date.

Stanley Halls, of the engineering staff of the Howard Smith Paper Mills, Ltd., who has been visiting different countries in Europe investigating new processes of paper manufacture, has returned to Canada.

R. H. Joyce, vice-president of the Don Valley Paper Company, Ltd., Toronto, has been elected president of the Summit Golf Club.

W. J. Parks, of the Interlake Tissue Mills, Ltd., Herritton, Ont., has left on a trip to Jamaica.

Robert C. Brown, of the Kimberly-Clark Company, Neenah, Wis., and Frank V. Friedlander, of C. R. Whiting Company, Inc., Newark, N. J., were callers on Paper Sales, Ltd., in Toronto, a few days ago.

Boston Paper Market Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 9, 1931—The improvement previously noted in the Boston paper market has been sustained during the last week, although, as a whole, the market can hardly be called better than fair. In a few individual cases, considerable betterment has developed. A member of a well known firm notes that within the last few days more prospective customers have been calling and a substantial number of inquiries have been received, some of them resulting in good sales.

A moderate demand for wrapping paper has prevailed during the week, but the amount sold is estimated to be 15 to 20 per cent below that of a year ago at this time. Specialties continue in average demand. The call for waxed paper is better. A Vermont concern, among others, has been receiving more orders than previously.

The Boston box board market has not been affected by the softness in Philadelphia and New York in filled news board and chip board, and values have remained at $32.50 and $30, respectively, in the Hub. Locally, the box board market is picking up, as a whole. There is considerable inquiring for machinery for making box board. Demand for machinery, in fact, has been increasing. February business with at least some manufacturers of box board machinery was better than that of March, and March demand, so far, has been better than the corresponding period in February.

The paper stock market has not shown any material advance over conditions of a week ago, although a very gradual improvement is looked for. Mixed papers remain at the same levels, but "not because of any particular strength." In rope and rags, the situation is practically the same, with slight downward movements in prices of a few grades.

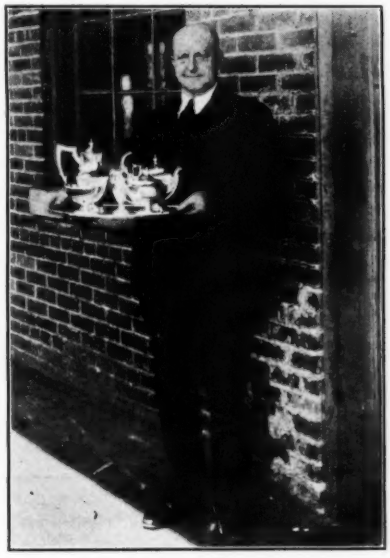
R. H. Laftman Presented With Silver Service

On the eve of his departure from Bogalusa, R. H. Laftman who recently resigned as our president and general manager Bogalusa Paper Company, Bogalusa, La., was presented with a sterling silver tea and coffee service by the employees of the Bogalusa Paper Company. A. B. Wells, assistant manager, telephoned to the house that the mill was threatened with serious labor trouble which he alone could handle and implored him to come immediately to deal with the situation. Upon arriving at the mill, he was faced by an array of serious faced men who apparently meant business. Before he could inquire what was up, the spokesman addressed him as follows:

"When you announced your resignation from the Bogalusa Paper Company, you cannot imagine what an instant reaction, what universal feeling of profound sorrow swept over the entire personnel of the mill. Not since the late Mr. Sullivan passed away has our community been so deeply stirred. Man after man exclaimed, 'I am losing the best friend I ever had.' Immediately, from all sides came the suggestion we must do something to show him how much we appreciate what he has meant to us. Those of us who have known you best felt you would not want to have any gathering of funds to buy a present. But the demand was so insistent, at last we were forced to yield and the word went around that any who wished might hand to their foreman whatever they wanted to give toward it. The result was an instant spontaneous outpouring from the dollars of the highest salaried to the two-bits of the lowest paid worker. All wanted to have a part. Some who did not hear of it at first came running in later asking if the list were closed, as they too wished to have a part in it. Practically 100 per cent of the employees of the Bogalusa Paper Company contributed.

"The committee appointed to take charge of the matter was faced with an embarrassment of riches. Finally it was decided to purchase something we learned you did not possess and which should serve as a constant reminder that wherever you may go your memory occupies first place in the hearts of those with whom you labored so long and so faithfully here at Bogalusa.

"I feel highly honored in having been chosen to present to you,



R. H. LAFTMAN

on behalf of the employees of the Bogalusa Paper Company, this silver service in token of their love and appreciation of your kindness and loyalty to them during the years we have worked together."

It was some moments before Mr. Laftman could control himself enough to reply. Then in a voice choked with emotion, he said:

"During the years that I have been in Bogalusa, I have enjoyed the friendship and kindnesses of all of you. I have never worked in an organization anywhere, or been connected with any company, where there has been such fine co-operation as we have had here. We have been just like one big family.

"To accomplish a big job successfully is not a task for any one man. It takes the individual effort of every man in the organization. And certainly we have had this spirit of co-operation and good feeling here.

"I wish that I might go through the mill and tell every man individually how much I appreciate this gift and the spirit which prompted it. Mrs. Laftman and I will always think of our happy days at Bogalusa whenever we use it. And when I come back for a visit after ten or fifteen years from now, I hope to find every one of you still carrying on in the fine spirit of loyal co-operation we have enjoyed in the past. And when I see that the mill has progressed as I expect it to, I shall feel that my work among you has not been in vain."

Quebec's Relations With News Print Industry

Maurice Duplessis, Three Rivers Representative, Alleges Unfair Treatment of Canadian International During Spirited Debate In Provincial Legislature—Honore Mercier Replies to Charges That Forests Are Not Being Properly Treated.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, QUE., March 9, 1931.—The relations of the Quebec Government with the pulp and paper industry, and in particular its relations with the International Paper Company, were the subject of a spirited debate in the Provincial Legislature during the past week. Maurice Duplessis, an Opposition member who sits in the House as the representative for the Three Rivers constituency, the center of the news print industry in this Province, led an attack against the Hon. Honore Mercier, Minister of Lands and Forests, and the Government generally.

In the course of his remarks Mr. Duplessis said that last year the Canadian International Paper Company had been threatened and treated in a manner different from others. The Prime Minister had sought to force the Canadian International Paper Company to raise the price of its news print to the Canada Power and Paper Company price, and yet the minister would claim this was sane administration. What had been done was that an order-in-council had been passed to permit the Canada Power and Paper Company to cut wood under the regulation diameter, and the Canadian International Paper Company, being given to understand that the same concessions would apply to their operations, had also cut wood under legal diameter. The next step was that the Government sought to make the Canadian International Paper Company pay fines to a total of $100,000. The company had done the cutting in good faith, and when faced with the Government's attempt to collect fines had simply turned against the jobbers who had done the cutting, and the Government had then found itself faced with friends of some of the members of the Legislature, influential partizans, and had decided to give way on their demands, and change its attitude towards the Canadian International Paper Company.

"I do not reproach the Government for abandoning its policy of intimidation the Prime Minister wished to take against the Canadian International Paper Company," said Mr. Duplessis. "The minister knows there was an enquiry before the United States Senate, at which Mr. Graustein was present, and the latter and his company were accused of violations of the Sherman Act, as well as the Canadian Combines Act, and each time the question was put to Mr. Graustein he replied that 'we were forced to act as we do, and we are being intimidated in the province of Quebec, and it is the Attorney-General of Quebec who asks us to violate, not only the law of the United States, but the law of Canada.'"

Mr. Duplessis said the Opposition had been reproached for saying Premier Taschereau had gone on his knees to Mr. Graustein. He was now trying to show another aspect of the situation.

"I say that Mr. Graustein did a good action in resisting the illegal attempts made in an intimidating spirit by the Premier of this province when he sought to force Mr. Graustein to violate the Combines Act of Canada, as well as the United States act," declared Mr. Duplessis. "It is this attitude on the part of the Premier which is one of the causes of the evil which now exists in the paper and pulp industry of the province."

The Hon. Mr. Mercier, in his reply, said that a whole legend had been created as to intimidation efforts against the company in question. He believed Premier Taschereau had replied explicitly in that connection. Referring to general charges that the forests were not being properly protected he said there are 4,000 men in the army which fights forest fires, and they have canoes, 54 watch towers, thousands of miles of telephone lines and there are six forestry associations. He further announced that his department is now experimenting with radio as a means of forest protection, a company having made offers in that connection.

Canada Power & Paper's Reports

Because of the outstanding position it occupies in the news print industry, and because of the many rumors regarding a super-merger of Canadian paper companies in which it is the central figure, the Canada Power and Paper Corporation's third annual financial statement, just sent forward to share-holders, has attracted great attention. The statement reveals operating profit before depreciation of $6,184,000, compared with $8,604,723 for the previous full year. Bond and debenture interest and preferred dividends of subsidiaries resulted in a net deficit of $451,000, compared with surplus of $125,908 after depreciation, but subject to income tax, for the previous year.

The report reflects the difficult time attending the industry, showing that serious overexpansion of mill capacity was accompanied by a decline in consumption in 1930 of approximately eight per cent. This was the first year since 1921 which failed to show an increase in consumption.

Operations were at the rate of approximately 56 per cent of capacity in 1930 as against 77 per cent in 1929, and the president, in his remarks to shareholders, states that consumption in the early months of 1931 shows a still further decline, operations to date being at the rate of approximately 43 per cent of capacity.

After deducting bond and debenture interest amounting to $4,886,184 there remained $1,298,770, whereas dividends paid on the preferred shares of subsidiary companies operations were $1,750,000, resulting in a loss of $451,229, before depreciation or depletion. If the usual depreciation and depletion charges had been made the loss for 1930 would have been $2,382,039.

Investments have been written down to the market value at December 31, involving a deduction from surplus of $4,717,795. The company's bank loans at the end of the year stood at $14,558,000, and during the current year capital payments of $5,748,641 are required, of which $4,429,882 will be on behalf of the Laurentide Company. The directors, in consequence, authorized the creation of an issue of bonds on the property of the Laurentide Company.

At the annual meeting of the shareholders of Canada Power and Paper Investments, officers and directors were re-elected. The board of directors is composed of: A. J. Nesbitt, president; P. A. Thomson, vice-president; J. S. Aird, M. A. Thomson and James B. Woodyatt, directors.

Boston Paper Co. Locates at Three Rivers

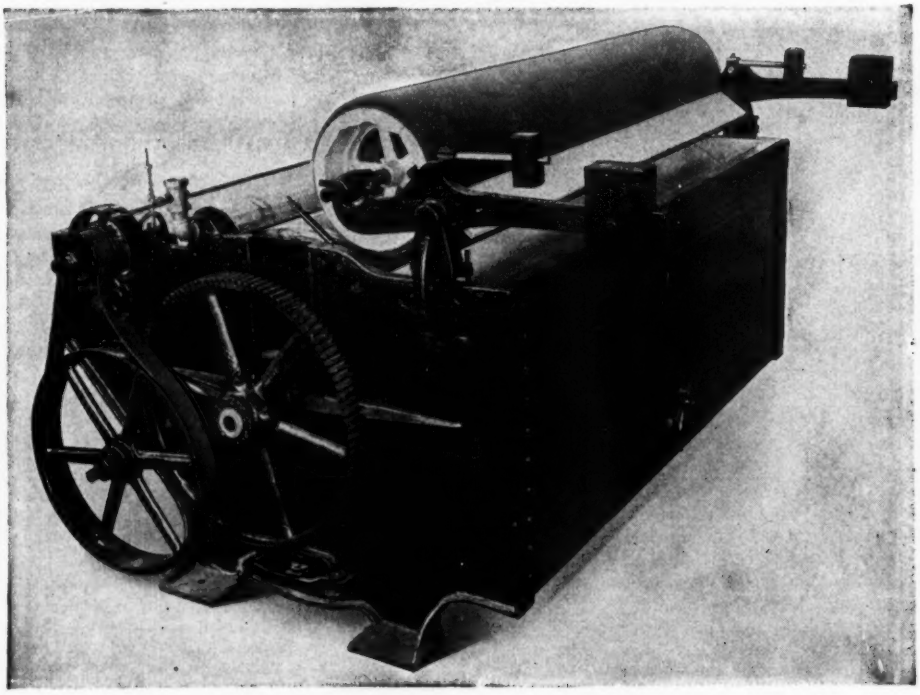
The Shawinigan Water and Power Company announces that after giving Canadian conditions a thorough study over a period of many months, the Boston Paper Board Company have decided to locate at Three Rivers and have already established their plant and equipment in that city. They are starting with a payroll of 25, which it is anticipated will be increased to 100 during the year.

Watervliet Installs Ross Drying System

A drying system to be used with Waldron high speed single coater for 94 inches wide goods has been installed at the Watervliet Paper Company, Watervliet, Mich.

BIRD MACHINERY

The Bird Closed System *Shows Large Earnings*



MODERATE first cost, negligible expense for power and maintenance, high yield make the Bird Closed System the most profitable means yet devised for recovering fibre.

Let us submit a layout for your mill, with an estimate of the earnings you can safely expect from the Bird System. Write.

BIRD MACHINE COMPANY
SOUTH WALPOLE ◆ MASSACHUSETTS

The
BIRD CLOSED SYSTEM

Demand for Paper Only Moderate In Chicago

Weaknesses Exhibited by Some Grades, However, Balanced by Improved Conditions in Others —Kraft Wrapping Paper Market Showing Some Signs of Betterment—Writing Papers Irregular, With Higher Grades Fairly Steady and Medium Lines Spotty

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 7, 1931—Little change is noted in the Chicago paper market this week. Business is only fair, with some weak spots balanced by improved conditions in other lines. There is a belief that buyers, having advanced their Spring requirements, are waiting now until they note a general turn in business conditions. The kraft wrapping paper market seems to have improved slightly during the past ten days. Writing papers are mixed, with the higher grades fairly steady, and the medium grades not quite so firm The book market is not bad as far as demand is concerned, although the price situation is reported not the best. Cover papers are steady. Glassines are slightly off and representatives of the ground wood market report that a five-day week is fairly generally in vogue. Sulphite and specialties are said to be from one to two weeks ahead at the present time. In the board market production is around 65 to 70 per cent, a lower figure than at this time a year ago.

Paper Stock Dealers to Meet

The annual meeting of the Waste Paper Division of the National Association of Waste Material will be held at the Congress Hotel, Chicago, on Tuesday, March 17, at 2:00 p.m. An unusually interesting feature will be a general discussion covering waste paper conditions throughout the United States, particularly interesting because of the educational program that the association is at present undertaking Some important routine matters will also be considered at the meeting and all matters handled by the various division meetings will be reported upon and annual reports submitted by the president and secretary. During last year the waste paper dealers have built up a strong organization based on the need of recognition of this important industry and the necessity of a closer and more sympathetic understanding between various component parts of the industry. J. V. Spachner, of the Chicago Paper Mill Stock Company, has been selected as a nominee for the board of directors of the National Waste Material Dealers organization.

From the Paperboard Industries Association comes the report that a committee of nine has been appointed to meet with a similar committee representing the Waste Paper Division of the National association at the annual meeting of the latter. Members of the association, as well as any in the industry who have subjects they desire to have brought to the attention of the committee representing the paper board group are being invited to submit them to the Waste Paper Division for discussion at this important meeting.

Container Corp's. Earnings

Considerable attention was given the activities of the Container Corporation of America during the past week. Directors of the corporation at a meeting on March 2 took no action on the Class A common dividend but declared the regular quarterly dividend of $1.75 per share on the preferred stock. Walter P. Paepcke, president, stated that during the last quarter of 1930 the company did not operate on a profitable basis due to unsually low volume and unsatisfactory selling prices. From preliminary figures net results for 1930 before depreciation, interest and taxes, will be approximately $1,500,000. After deducting substantial depreciation of $826,000, interest and federal taxes, net for the year was slightly in excess of $100,000.

Jack Burrus Addresses Paper Salesmen

The Mid-West Division of the Salesmen's Association of the Paper Industry heard Jack Burrus, of the Albemarle Paper Company, discuss his product at the Monday, March 2, meeting of the association. Mr. Burrus gave an interesting discussion on his company's products—krafts and blottings—showed samples of the papers, talked on the various grades, gave an interesting history of the mill, its size, machines, policies, etc. The meeting was one of the regular program carried on by the association. John Wesley, of the Rhinelander Paper Company, will talk on March 9, discussing glassines and grease-proofs and giving a general outline of the organization which he represents.

Paper Merchants to Discuss Kraft Situation

The Chicago Paper Association will hold its next regular meeting on Tuesday evening, March 10, at the Bismarck Hotel. It is reported that the members of the association will again go into a "huddle" over the kraft situation and continue some hard efforts to create a more wholesome market and a better understanding between the manufacturer and the wholesaler. At the same time the association will continue its fight to do away with the peddler element in the coarse paper trade.

D. F. Peck Returns to Duty

D. F. Peck, of the Hanchett Paper Company, president of the Chicago Paper Association, returned from a six weeks vacation at Miami Beach, Florida, on March 5. His headquarters were at the Flamingo Hotel and his pastimes, he says, included golf, swimming, boating, bathing, fishing, prize fighting, horse racing and a couple of others. His report on the kraft situation here is that it has improved noticeably in the past ten days and that more real buying is going on than has been done in the last 90 to 120 days. Incidentally, Mr. Peck cut short his vacation to celebrate St. Patricks Day with M. A. McNulty, of the McNulty Paper and Twine Company. It is an old custom between the two executives.

Paper Cans Now Printed In 4 Colors

By means of a process just perfected by the Purity Paper Vessels Co., of Baltimore, Md., Purity Paper Cans for food products are now available to the trade in all sizes, imprinted in as many as four colors, or less. This new method is said to produce the cans in exact color registry and to give exceptionally rich coloring.

In addition to this feature, Purity Paper Cans are made of new clean wood pulp, they are scientifically waxed, and are made with a patented double locked crimp at top and bottom which makes them air tight and liquid tight. They are used extensively for both store and factory packing.

Purity reports that an impressive increase in business has resulted from the perfection of this new equipment as manufacturers have been quick to realize the advantages of paper cans bearing the advertisement of the manufacturer in full color.

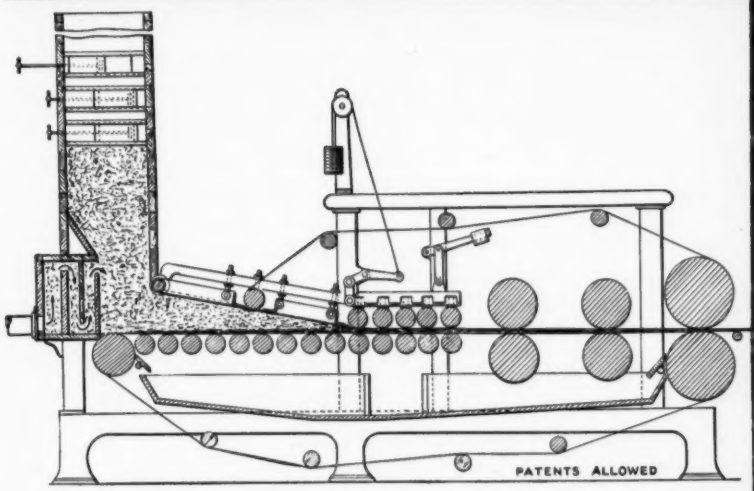
The process used by Purity is the result of years of study and experimentation.

Norwegian Pulp Production for 1930

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 11, 1931.—Commercial Attache M. H. Lund, at Oslo, states that wood pulp production by Norwegian mills last year is reported at 157,275 metric tons for bleached sulphite, 124,394 tons for unbleached sulphite, 21,527 tons for sulphate and 503,616 tons for mechanical ground wood.

Purposely Designed for Continuous Board Forming



The Downingtown Board Forming Machine is not an adaptation or modification of any conventional machine in the pulp and paper industry. It is a new type machine, radically different, designed to meet the requirements of this new industry. It will make up to 300,000 square feet of ½″ board in 24 hours and proportional amounts of boards of various thicknesses up to 1½″. Saw mill waste, bagasse, licorice root, mineral wool from blast furnaces and other materials of a fibrous nature can be turned into a saleable product. Our commercial laboratory will make sample board from your waste material.

Downingtown Manufacturing Company

Downingtown, Pa.

An Old Timer's Reminiscences

By Joseph H. Wallace, Pres., Joseph H. Wallace & Co.

(Continued from last week)

The South Tempts Us—and We Fall

When, in 1906, we saw the burning piles of refuse from the saw mills and examined the fiber thereof, we got ourselves into trouble. For exactly twenty years, we spent our own spare time and our own money on this subject, and later when our laboratory and miniature extraction and pulping plant were running for several months on the demonstration of our idea, we invited chemists, manufacturers and others to come and help us find out what was the matter with the scheme. And "they came to condemn and remained to praise." In other words, they invariably bought some stock in the company that holds the patents and financed the experiments. None was asked to contribute—none, except men who could decide intelligently for themselves, was sold any stock. Forty of the cellulose chemists of the world, attending a meeting of the American Chemical Society in New York and a big chemical show in the Bronx were our guests on a Sunday and two plants were shown in operation, one a laboratory demonstration in glassware—whereby all the operations were visible, the other a miniature mill—all on an operating basis, showing practical methods to be used in mills. None of the forty could find a flaw in the scheme and some invested therein. And we learned from this study that kraft paper was obtainable commercially from all varieties of Southern pine. Then we promoted, designed and built the Southern Paper Company plant at Moss Point, Mississippi. We acted as vice-president and general manager of this mill for its first three years of operation.

Hire Sulphate Mill in Sweden

In going about this development, we hired the sulphate mill at Billingsfors, Sweden—took a shipment of material from the vicinity by boat from Gulfport to Sweden, and, in the presence of a critical committee, the tests were made. The committee consisted of A. Lafemann, manager of the mill in which the tests were made; William Wallace, manager of Carrongrove Mills, Denny, Scotland, a hardheaded and able Scotch paper maker; and the eminent Swedish pulp chemist, A. Munsing. The committee saw pulp made from Southern Pine, and saw this pulp made not only into kraft paper but also into fine book and quality magazine papers.

The committee made a report to the bankers that it was a practicable program, the funds were raised in a month on preferred stock at par—no commission—bonus common stock to stockholders and promoters. And when that mill was sold to International Paper Company, a chapter was completed that satisfied those who took part in the demonstration of kraft paper from Southern pine, from which point the South went on building kraft paper mills until the kraft paper market was crippled with the load, but none would look at the two other possibilities that are more attractive, i.e. White papers of high character—and by-products taken from the chip before digesting that would pay for the wood and make the paper operations easier and of higher quality by standardizing the raw materials. We see mills spending time and money on various devices and methods to standardize their products—but can't get anyone to listen seriously to a scheme to standardize the raw material, while paying for it with by-products, even though standardizing raw material is 80 per cent of the story of stardardizing the finished products and this is true of any industry about which we have knowledge.

Now that's out of our system and we feel better. If you want to know more about it, look up the PAPER TRADE JOURNAL, February 3, 10 and 17, 1927—and read the articles by F. E. Greenwood—or we will send you a reprint from those articles on request.

Wonderful Acquaintances

From the Swedish experiments and from our relations with the industry there, we made many wonderful acquaintances—our stay at Billingsfors will never be forgotten. And we brought Richard Laftmann over with us as an adopted son for the industry. Carl P. Carlson had introduced us to Adolph W. Waern, a pioneer in the sulphate game in Sweden. Waern became a member of our organization and had the experiments in hand. Waern is one of the best designers in sulphate work it has ever been my good fortune to meet.

It Sometimes Snows

We had to go to Scotland to discuss arrangement of the plant with William M. Wallace. After getting so we could understand English as she is spoke in Lancashire, and trying to get along with Yorkshire English, we felt competent to go to Scotland, although we were too sanguine of our accomplishments. But we surely love Scotland and the Scotch—(we mean people, but it goes for the whisky, too). It was interesting to see the little mill at Denny and the sign "J. Luke"—from which the great West Virginia Pulp and Paper Company developed and Guard Bridge at Fife remains a pleasant memory. At Kendall, England, in the lake district it rained as usual. One American there to see the lakes and tired of waiting for a sunny day, asked, "Does it always rain here?" "No!" said the page, "it sometimes snows."

At Stirling Castle we leaned that we couldn't get our carcass into the armor of the great Scottish chief, Sir William Wallace, about whose size we had heard so much, which was a wee bit of a joke on the Scots. Being asked if we claimed descent from Sir William, we replied, "We always have claimed it on general principles, until recently we learned that he had no legitimate children. Since then, we haven't said much about it."

Moss Point Chosen for Site

After the pulp from the Swedish test run on Southern pine wood had been thoroughly worked out by Scotch and English paper makers—and kraft, book and writing papers made therefrom, the financing of the scheme went over fast. Moss Point, Mississippi, was chosen for the site, after a study of the coast from Charleston, South Carolina, to Beaumont, Texas. J. Lewis and Alfred Dantzler of Dantzler Lumber Company at Moss Point, became president and treasurer respectively which gave the Southern Paper Company its best possible local standing, while the shareholders list included many titled gentry and a fair share of the Conservative party membership in Parliament.

My contact with the House of Commons was one of the most delightful of all my experiences. Through Sir Ion Hamilton Benn and Sir Arthur Shirley Benn, both members, we became acquainted with such men as Bonar Law, Lord Beaverbrook, then Max Aitkin, and many others who became shareholders of the Southern Paper Company. Its list looked like Who's Who in England.

Doing It All Over the South in Fifteen Years

When we started building this mill many of our friends laughed at our prediction that in fifteen years the South would dominate the wrapping paper trade in this country. Now many of them claim to be responsible for it. When this mill was sold to the International Paper Company, it was the right time to sell it—so the shareholders were happy ever after. "Ain't that something?" And now we wonder why some of those mills aren't

Tensilastic Rubber Table Rolls are "KI-UND" to your wires...

Stealing a bit of thunder from a well-known radio feature, we repeat with emphasis, "Tensilastic Rubber Table Rolls are kind to your wires". They cushion the wire on a friendly surface that does not chafe nor damage the wire fabric at any point or any time. Yet they are sturdy enough to withstand far more than the ordinary abuse and stress of steady production.

* * *

They will not distort nor whip; acids, fillers or dyes cannot pit nor corrode them; nor will pitch cling to them. The water used so freely at the wet end actually serves as a lubricant, improving and prolonging their service.

* * *

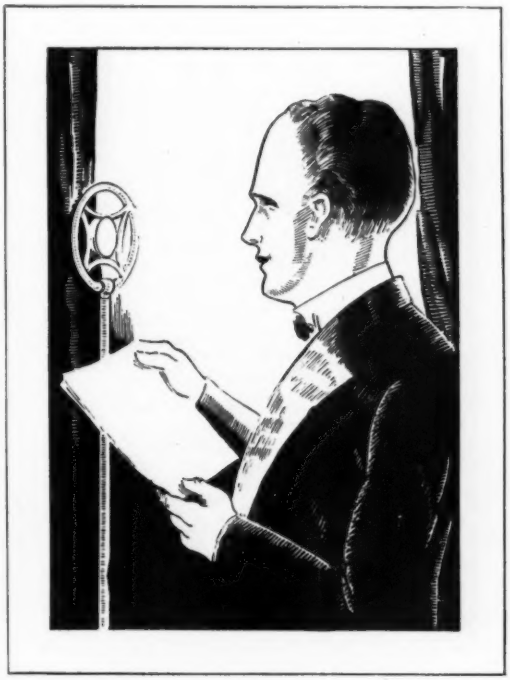
In other wire positions, too,—breast, couch, stretch and carrier, — Tensilastics provide ideal mediums to meet paper machine requirements. Friction between wire and rolls is practically eliminated, increasing the life of the wire and reducing costs.

* * *

Tensilastic rubber is proof against oxidation to an unusual degree; serves 30% to 40% longer between regrindings than ordinary rubber compounds; can be made to definitely controllable density and tensile strength to meet special conditions; and can be precisely duplicated in quality and characteristics at any time.

* * *

The industry's master machine builders recommend Tensilastics; the industry's master mills specify them. If YOU haven't yet learned their many advantages, install a trial set,—you'll find it an investment in satisfaction.



ROLL LIFE INSURANCE

Whenever releasing weight on front side release uniformly on back and avoid distorting rolls.

More helpful hints in booklets
"The Use and Abuse of Rubber Rolls"
and
"Density and Crowning of Press Rolls"
Write for YOUR copies

American Wringer Co., Inc.

Rubber Roll Specialists for More Than 40 Years

33 No. La Salle St., Chicago — Woonsocket, Rhode Island — 461 Eighth Ave., New York

Pacific Coast Representative: Walter S. Hodges, Lewis Bldg., Portland, Ore.

CANADIAN FACTORY: FARNHAM, QUEBEC

TENSILASTIC

RUBBER ROLLS

T12

changing their products to white sulphate papers and making by-products to pay for the raw material. And we predict that in fifteen years they will be doing it all over the South.

Bagasse, too, is a beautiful material for fine book papers and specialties, while gum woods have a soft fiber suitable for mixing with pine to make printing papers of high character. They also are going to find their way to the market in the form of paper and there is still some story to be told in the South—and a big percentage of the paper business in this country will be down there in another fifteen or twenty years, for there is raw material there, of a character to produce quality products.

So, as we stated in opening this article—the South tempted us in 1906—and we fell, and we have been falling for the South and its future ever since, but we don't see why everyone should make the same kind of product and make more of it than the market demands, and now that *that* is off my chest, I shall be glad to hear the howls of derision and fight this out with all comers, so "what have you?"

A Place To Eat, Drink and Be Merry

While at Moss Point we became very well acquainted with New Orleans. It was tempting fate to leave us within one hundred miles of the most delightful city on this continent, wasn't it? About Friday of each week we had accumulated a few errands that made an excuse to leave about 5 P.M. for the "city that Care forgot," or as Benny Reist used to say, "city that cares for Gut!" We usually went there to spend Saturday and Sunday and the money accumulated during the week at work—and it wasn't a bad place to spend it. The New Orleans of 1910-1915 was worth while, and we would class it by itself as a place in which to eat, drink and be merry. It was as foreign as any place we ever saw abroad, and in Sweden and Norway's class in that everywhere the food was tasteful—nowhere was there any bad food or even ordinary food—which is more than most places can brag about, if they are honest and know anything about eating. Antoine's, Cafe Louisianne, Sazerac, Ramos, and Begue were names that meant quality and refinement in food and drink, but one couldn't find food in the city that was ordinary. And we do like tasty nourishment, don't we? I learned of real worthwhile watermelons, Buster Crabs, Oysters Rockefellow, Pompano baked in a paper bag, Sazerac Cocktails, Ramos Fizzes, and Cafe Diabolique for the first time from New Orleans.

After our Moss Point period we have lived for limited periods at Richmond, Hopewell and West Point, Virginia; at Richwood and Charleston, West Virginia; and in Tennessee, Georgia, the Carolinas and Florida, in each of which states we have done engineering work. We have examined prospective locations for pulp and paper mills in every coast state from Maryland to Texas and we like the South and believe in its future in paper making, and we believe we have studied its possibilities and collected data as fully and completely as anyone since we first took notice.

Speaking of bagasse—we met Bert de La Marre, a distinguished French chemist while we were in Paris in 1908. He had been developing sugar mills on the island of Trinidad and had built a paper mill to operate on the bagasse refuse of the sugar mill and had made it pay too. His mind was a remarkable combination of scientist, executive and financier. I haven't met many such. We are hopeful that some day we shall have a commission to build a mill that shall use pine, bagasse, and gum wood fibers and make high grade papers—and money—especially the last. New Orleans papers, please copy. We salute the South.

(To be continued)

Building Weyerhauser Sulphite Mill

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., March 7, 1931.—Piling has been driven and acid tanks are now being constructed at the site of the new 250-ton sulphite mill under way at Longview, Wash., for the Weyerhauser Timber Company.

"Green Core" Tape Ordered Over Television

On Thursday afternoon, February 26, Mr. William E. Ebbets, secretary and general manager of Coy, Disbrow & Co., New York, and George Goodsir, vice president of Mid-States Gummed Paper Company of Chicago and New York, took part in a demonstration of Two-way Television, through the courtesy of the New York Telephone Company.

The Television Conversation took place at 3:20 P.M., Mr. Ebbets talking from the station at Bethune and West streets, and Mr. Goodsir from the station at 195 Broadway. When directed they entered their respective booths, which were in complete darkness when the doors were closed, took seats, and faced the illuminated sign "Iconophone." In a very few moments thereafter there appeared at 195 Broadway, the smiling, genial countenance of Mr. Ebbets, while simultaneously at Bethune and West streets, Mr. Goodsir's face showed, and conversation immediately began. A microphone and loud speaking telephone are hidden behind the drapery.

Mr. Ebbets opened the conversation by placing an order for "Green Core" gummed tape with Mr. Goodsir, who expressed hearty appreciation for this first order placed over this remarkable scientific development in the line of transmission.

The demonstration was arranged for by Mr. Charles Endrich of Coy, Disbrow & Co., with the New York Telephone Company, and following Messrs. Ebbets and Goodsir, Robert H. Coy talked with Mr. Endrich. All agreed that it was a wonderful demonstration and that the likenesses were so lifelike and natural that it seemed as if they were talking to each other face to face. The Two-way Television machinery was perfected for working demonstrations about eight weeks ago.

It will probably be some little time before the Telephone Company will get Television out on the market on a practical, commercial basis, but according to the gentlemen mentioned it certainly has it working perfectly now so far as the Two-way vision and transmission of voice are concerned.

Visits Carter, Rice & Co. Branches

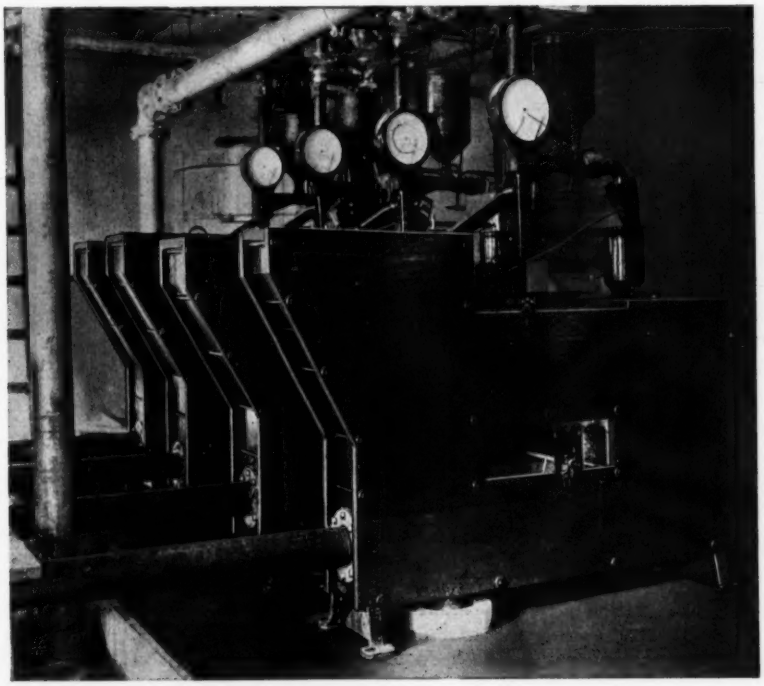
[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., March 7, 1931.—Hubert L. Carter, of Boston, president of Carter, Rice & Co., was touring the West Coast last month visiting branches of his company and instituting some changes in policy. Chas. H. Beckwith who has been Pacific coast manager for some years for the company with his headquarters in Seattle, has moved to San Francisco which will hereafter be the Pacific coast headquarters. Allen M. Olinger who has been manger of the San Francisco offices of the company at 240 Howard street will continue in that position and location. James W. Murphy, manager for Oregon, whose office in Portland last year walked off with some good salesmanship prizes over the whole organization, will remain there as formerly and E. E. Embree will continue to manage the Seattle office. The change in the main office location is expected to work to advantage for all concerned, according to Mr. Carter.

Japanese Paper Production in 1930

Manufacture of paper by mills of the Japanese Paper Manufacturers' Association during 1930 totaled 683,767 short tons, a decline of 25,327 tons or 3½ per cent compared with the preceding year. Sales during the year aggregated 673,594 tons, a drop of 16,022 tons, or 2.3 per cent under 1929.

The heaviest declines were registered in cheap printing paper (exclusive of news print), writing and drawing papers, and "torinoko" papers, the first mentioned having decreased by 19 per cent and "torinoko" papers by 13 per cent. Production of news print paper, which aggregated 284,180 tons for the year was practically on a level with 1929, while the manufacture of packing and wrapping paper increased by 24 per cent, the 1930 output totaling 62,960 tons. Manufacture of best grade printing paper and also of boards by the Japanese mills dropped off 5 per cent.



Are You Having Trouble with BASIS WEIGHTS?

Uniform quality of your finished sheet depends to a large extent upon the uniform consistency of your stock.

It is impossible to get uniform quality if you send varying consistencies of stock to your machines without some means of dependable stock consistency control.

The Dezurik Stock Consistency Regulator provides such dependable control.

No power . . . no attention . . . is required. All the stock—not just a sample—passes through the machine. Whenever the density of the stock exceeds the point of consistency for which the machine is set, the proper amount of water is automatically added. A constant head float controls any variation in water pressure. The entire regulating device is visible.

It is a simple, inexpensive machine. Yet the function it performs is indispensable. Every line in your mill should be equipped with one. Full particulars can be had by writing the Valley Iron Works Co., Appleton, Wisconsin.

VALLEY

Equipment for Paper and Pulp Mills

New York Office: 350 Madison Ave.
Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada

Obituary

Thomas E. Warren

[FROM OUR REGULAR CORRESPONDENT]

TICONDEROGA, N. Y., March 6, 1931—Thomas E. Warren, general manager of the Ticonderoga Pulp and Paper Company, died this week at the Albany City Hospital following a brief illness. He was connected with the company for about fourteen years and had gained widespread reputation as an expert in the manufacture of news print. Prior to becoming connected with the local concern, he was connected with the International Paper Company in an executive capacity. His death came as a shock to his many friends in the industry, as when he entered the hospital for treatment it was believed that his illness was only of a minor nature.

F. J. Arlinghaus

CINCINNATI, Ohio, March 7, 1931—F. J. Arlinghaus, who for over a half century had been a valued member of the Chatfield & Woods Company and the Chatfield Paper Corporation, and a skillful merchant, died Monday, March 2, aged 73. Mr. Arlinghaus had a most unusual knowledge of paper and as a buyer was well known to many manufacturers throughout the country.

Moses Frank

[FROM OUR REGULAR CORRESPONDENT]

PROVIDENCE, R. I., March 7, 1931—Moses Frank, who founded the Union Paper Company, of Providence, R. I., in 1898, died at his home in Providence, on February 23, at the age of 81 years.

To Take Over Warren Parchment Co. Plant

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., March 9, 1931—A new concern dealing in paper products to be known as the Ron-Noc-O Paper Company has been incorporated and negotiations have been virtually completed for taking over the plant of the Warren Parchment Company at this place. The directors in the concern include John Bamwell, William E. Howley and L. C. Gunn, all of New York city. The incorporation certificate stated that the company will manufacture and deal in all kinds of paper, paper goods, products, pulp, and articles made entirely or partly of paper, pulp or fiber. It is understood that John O'Connor, prominent in paper mill circles, will supervise activities for the new concern as he has been among those participating in negotiations towards leasing the plant. For the past several years he has been superintendent of a mill at Crabtree, P. Q., and at one time he served in a similar capacity with the International Paper Company here.

An inspection of the mill has already been made by the prospective purchasers and the final details are expected to be announced within a few days. For some years past the plant has been devoted to the production of greaseproof papers although operations were suspended about a year ago. Upon closing the mill the Warren Parchment Company went into receivership and settlement in part was later arranged with creditors. The complete ownership was then taken over by Mr. Warren although operations were never resumed. It was learned that the equipment is in first-class condition and ready for immediate operations. The new owners plan to employ about fifty hands at the start and production is expected to exceed a dozen tons a day.

French News Print Production Increases

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 11, 1931.—French production of news print paper continued to increase during 1930 while imports, according to preliminary figures available, declined about one third according to Assistant Trade Commissioner Taylor at Paris.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 9, 1931—A large attendance is expected at the coming dinner of the Boston Paper Trade Association, to be held at the Algonquin Club, March 18. General Smedley Butler, of the United States Marine Corps, and General Joseph B. Ely are to be the speakers. General Butler is to discuss "The Crime Problem."

The Babbitt-Kelley Company and the Claremont Paper Company, Inc., Bellows Falls, Vt., are very busy. The Babbitt-Kelley Company manufactures a variety of papers, including school drawing, manilas, cover and special papers. The Claremont Paper Company makes kraft and fiber papers.

A mailing-piece, "At a Profit," offering the portfolio plan of the Munising Paper Company, Munising, Mich., is to be sent out shortly by the Arnold-Roberts Company. The samples of paper are of Caslon Bond, and the letter-heads of regular type. The forms for bill-heads, invoices, etc., have been prepared by one of the leading accounting firms of the country.

William N. Stetson, president of the Storrs & Bement Company, address a meeting of senior salesmen at the office of the company Friday evening.

Carter, Rice & Co. Corp. have leased the front portion of the fourth floor, 250 Devonshire street, to John Hetherington & Sons, Inc.

Brauch P. Epes, of the Albemarle Paper Manufacturing Company, Richmond, Va., has been calling on the trade in Boston and New England in connection with the work of Blair B. Stringfellow, Jr., the New England representative. Others who have called on the Boston trade during the week include Edward H. Coldsworthy, chief of the waterproof paper department of the Safepack Mills, Millis, Mass.; Alfred Nalle, of the New York office of the West Virginia Pulp and Paper Company, and E. E. Ketchum, representative of the Southern Kraft Corporation, New York.

J. H. Root Heads Monroe Paper Products Co.

MONROE, Mich., March 9, 1931—Jesse H. Root was elected president of Monroe Paper Products Company at an organization meeting of the new board of directors last week after the annual meeting of stockholders. Other officers are: Austin Consor, vice-president; C S. McIntyre, chairman of the board; Carl Kiburtz, secretary; R. M. Sperry, assistant secretary and J. F. Gutmann, treasurer.

Thomas Sullivan who has been technical superintendent at the River Raisin Paper Company was appointed general manager of the Paper Products Company and has already assumed his new duties.

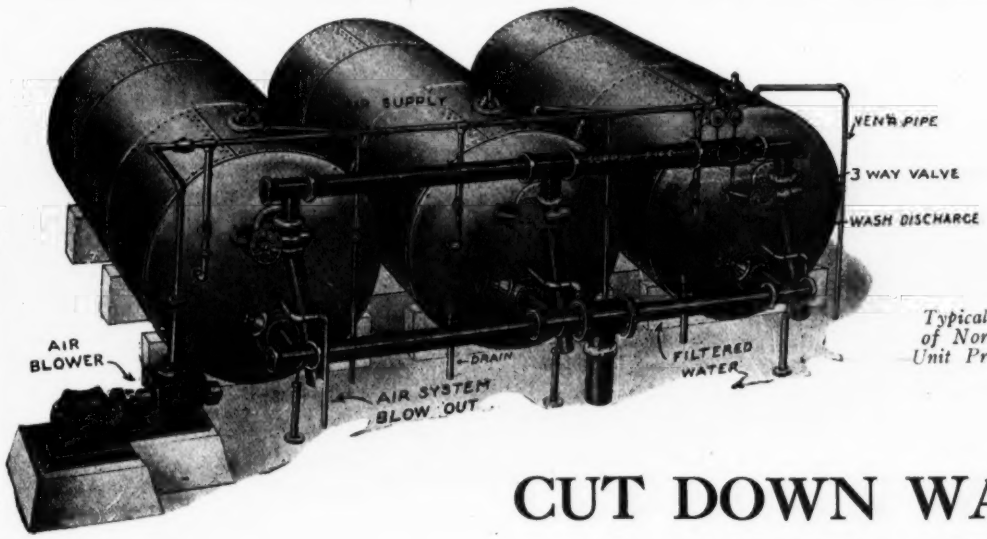
The officers are all from the new group which obtained control of the annual meeting of the company in a solicitation of proxies preceding the annual meeting. Further plans for executive reorganization were being considered.

W. R. Harris, former president, remains on the board and will continue with the executive organization for the present without office. Mr. Harris in a statement to the annual meeting said he would not be a candidate for office but offered any assistance desired in carrying through new plans for the company.

An executive board has been named to have immediate charge of all operations and to work with the general manager in the conduct of the business. The members of this board are Judge Root, Mr. McIntyre, Mr. Kiburtz, Mr. Consor and John Gutmann.

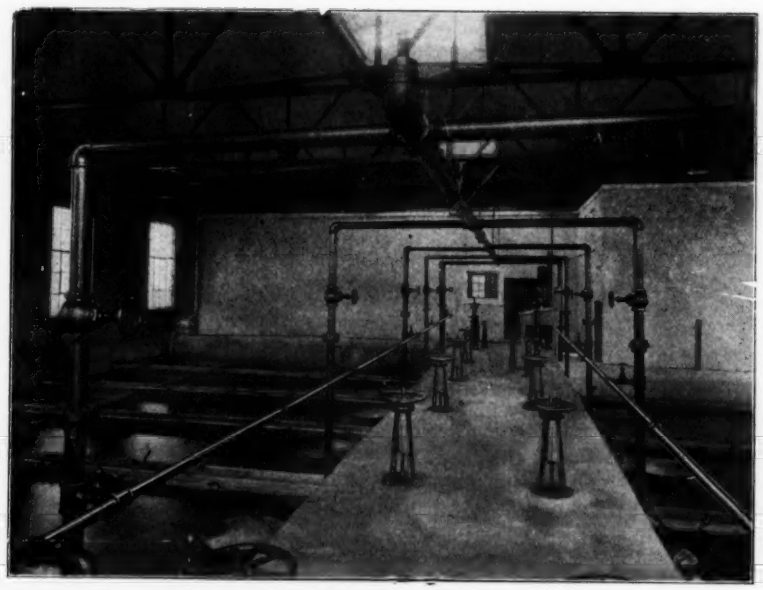
New Advance Bond Agent

Carter Rice & Co., Incorporated of Portland, Ore., has been made an agent for Advance Bond. This paper, made from 100 per cent white linen and cotton clippings, is a certified product of the L. L. Brown Paper Company of Adams, Mass.



Typical Installation of Norwood Three-Unit Pressure Filters

CUT DOWN WASTE IN YOUR MILL



Typical Installation of Norwood Gravity Filters

Why let the waste of spots, stains, off-colors, broke, and "seconds" be a constant drain on your profits—when this waste is avoidable? Why take the chance of shut-downs and defective sheets when these profit eaters can be guarded against?

Most of these troubles are traceable to defective water—and waste due to defective water is avoidable. Cut out this waste in your mill this year.

Efficient mills are cutting down waste by using efficient filters—and pretty close to 95% of all paper mill filtration systems are made by Norwood. Ask Norwood's engineers to help you check your troubles against your water supply.

Norwood Engineering Co.

17 No. Maple Street

Florence, Mass.

You can't go wrong with a Norwood Filter, calender, plater, duster, rag thrasher, folding machine, suction box or other paper mill equipment installation.

Norwood Engineering Co.,
17 No. Maple St., Florence, Mass.

Send Filter Catalog—Gravity—Pressure

—Have engineer call when next in this vicinity

—Will filtration help us get rid of the trouble described on attached sheet?

Name .....

Firm .....

Address .....

New York Trade Jottings

G. D. Jenssen Company, sulphite mill engineers, have removed from 200 Fifth Avenue to Suite 4005 in the Chrysler Building, New York.

* * *

Foreign Paper Mills, Inc., United States agents for Schopper paper testing instruments, are now installed in their new quarters at 314-316 Broadway, New York.

* * *

West Virginia Pulp and Paper Company has leased the entire building at 510-514 West 27th street, New York, from the John J. Radley Realty Corporation.

* * *

The Fourteenth Annual Banquet and Dance of the Metropolitan Bag and Paper Jobbers' Association is to be held at the Park Central Hotel, New York, on Saturday evening, March 14.

* * *

St. Regis Paper Company, New York, has declared the regular quarterly dividends of 25 cents on common stock and $1.75 on preferred stock, both payable April 1 to stock of record March 10.

* * *

L. Glickman & Co., manufacturers of paper bags and dishes, of 505-515 Johnson Avenue, Brooklyn, N. Y., announce the return of Alfred Corman to the paper industry. Mr. Corman will devote his entire efforts to the sales of their products in the Metropolitan District.

* * *

The Certain-teed Products Corporation and subsidiaries for the year ended December 31, 1930, reports to the New York Stock Exchange net loss of $2,468,319 after depreciation, depletion, interest, taxes and adjustments, comparing with net loss of $1,282,586 in 1929.

* * *

Presiding Judge Fischer, of the United States Customs Court, announced a decision recently holding certain imported standard news print paper duty free under Paragraph 1672, Tariff Act of 1922. The court's decision sustains a protest of the Hudson Trading Company, New York.

* * *

R. D. Keim, sales manager for E. R. Squibb & Sons, was the guest speaker at the regular weekly meeting and luncheon of the Eastern Division of the Salesmen's Association of the Paper Industry last Tuesday at George's Restaurant, New York. Mr. Keim gave an interesting account of how his organization was meeting prevailing business conditions.

* * *

The annual meeting of the Paper Association of New York City will be held on the afternoon of Thursday, March 26, at the Arkwright Club, 320 Broadway. The annual dinner, which will follow the meeting, will this year take the form of a testimonial to Kit Warner, in appreciation of his many years of active service both in the local association and in the National Paper Trade Association, of which he has only recently completed his term of office as president.

Sitka Ships Pulp To Philadelphia

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., March 7, 1931.—The Quaker Line steamer, San Marcos, lifted 501 tons of pulp at Marshfield, Ore., February 17 from the Sitka Spruce Pulp and Paper company's mill at Empire. The cargo was shipped to Philadelphia.

Defiance Sells Glazed Wrapping Business

NIAGARA FALLS, N. Y., March 9, 1931—The Defiance Paper Company has announced the sale of its machine glazed wrapping paper business, conducted at the plant of the former Pettebone Paper Company in the Canal Basin, and the closing of the Pettebone plant. The Canal plant ceased operations March 1.

The business was sold to the Fox Paper Company of Lockland, Ohio. Officials of the Defiance Paper Company said that the purchasers will transfer operations to Lockland. The machinery will be disposed of as quickly as possible, they said. The buildings belong to the Niagara Falls Power Company.

The Pettebone plant has been in operation here for the past 40 years. It was taken over by the Defiance Paper Company six years ago. Between 35 and 40 employees were engaged at the plant. The Defiance firm has approximately 400 employees.

This does not, *in any way*, effect the operation of the company's Defiance No. 1 Mill, in which it manufactures novel news, hanging, dry finish butchers, imitation sulphite parchment, etc.

Saranac Mill Damaged by Fire

[FROM OUR REGULAR CORRESPONDENT]

PLATTSBURG, N. Y., March 7, 1931—Considerable damage was done to the plant of the Saranac Pulp and Paper Company this week from fire which is believed to have started in waste materials. A number of burlap bags filled with paper cores were piled on a scaffold near the roof of the main building and sparks from a blow-torch used by a workman started the conflagration. The local fire department was called out and when it arrived on the scene the sprinkler system in the plant was functioning perfectly. When the sprinkler system was turned off a number of mill employees climbed the scaffold and threw down the bags of paper cores in order to prevent the blaze from spreading. The damage was caused mostly by water and was estimated at about $3,000.

Paper Mill Employment

Both employment and payrolls fell off in the paper, pulp and paper box industries in January as compared with December according to the Bureau of Labor Statistics, Department of Labor.

Reports were received by the Bureau from 213 paper and pulp factories which gave their December employment at 55,061 decreasing in January to 53,541 a decrease of 2.8 per cent. Weekly payrolls in these same mills also decreased from $1,361,820 in December to $1,285,162 in January a decrease of 5.6 per cent.

The Bureau also received reports from 308 paper box factories which gave their December employment at 25,867 decreasing in January to 24,406 a decrease of 5.6 per cent. Weekly payrolls in these plants also decreased from $566,201 in December to $516,819 in January, a decrease of 8.7 per cent.

Mt. Vernon Straw Board Co. Incorporates

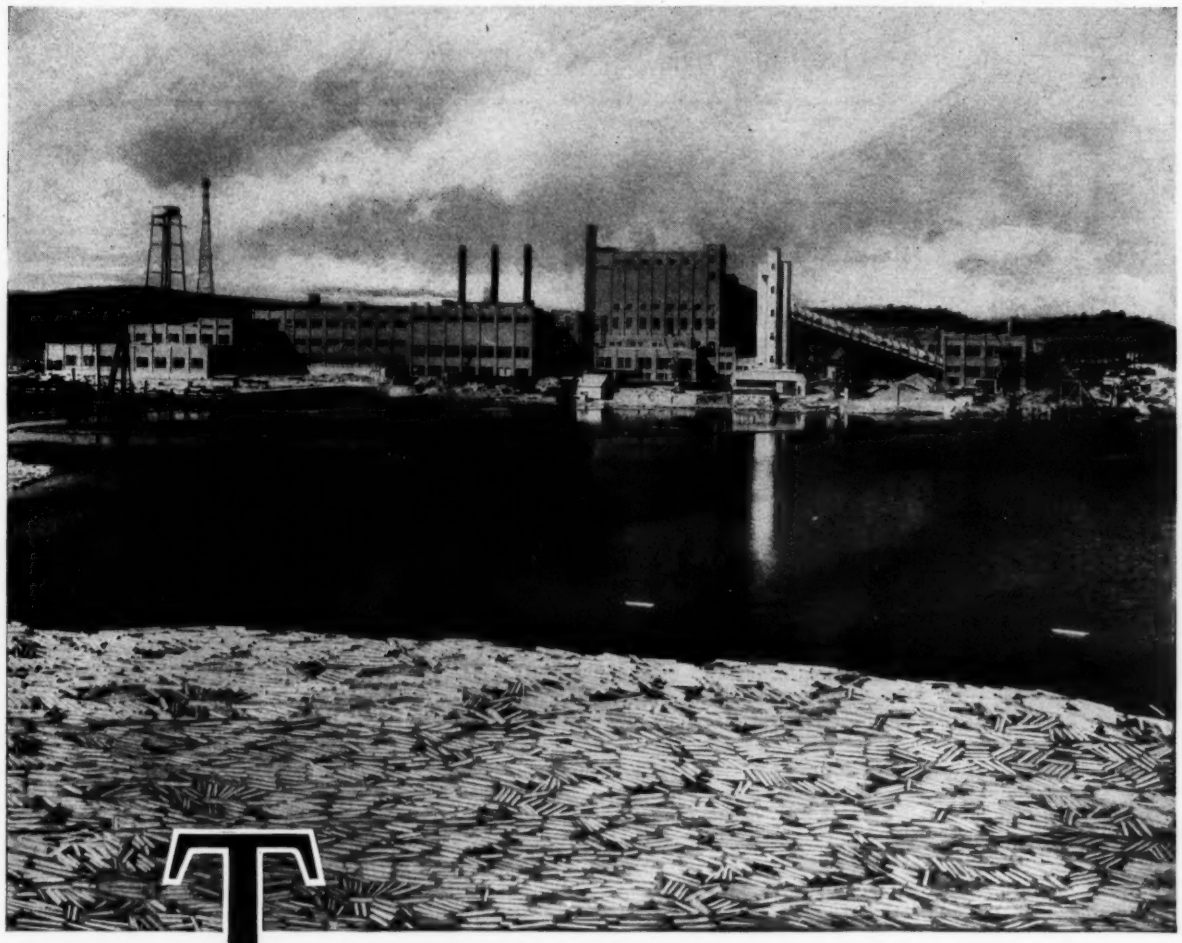
[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 9, 1931—Articles of incorporation have been filed with the secretary of state here by the Mt. Vernon Straw and Paper Board Company, Inc., having a principal place of business at Mt. Vernon, Ind. The corporation has an initial capital stock of 1,000 shares having a declared par value of $50 each and 750 shares having a declared par value of $100 each. It is formed to manufacture and sell paper, paper board, straw and straw board. The first board of directors is composed of Robert A. Keck, M. W. Fuhrer and Robert W. Stevens.

Swedish News Production in December

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 11, 1931.—Production by the Swedish news print mills during December totaled 16,813 metric tons as against 17,920 tons during November and 19,250 tons during the corresponding month in 1929.



THE last word in newsprint mills . . . Maine Seaboard Paper Company, Bucksport, Maine . . . employing the last word in newsprint machines.

RICE, BARTON & FALES
INCORPORATED
WORCESTER, MASSACHUSETTS, U. S. A.
Paper Making Machinery Since 1837

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Cincinnati, Ohio.—Negotiations have been concluded by the Pollock Paper and Box Company, Dallas, Texas, for the purchase of a controlling interest in the Waterproof Paper and Board Company, with plant at 427 East Sixth streets, Cincinnati. The purchasing company will operate as an affiliated interest in the future and will develop plant facilities. The Pollock company also operates the Southern Wax Paper Company, Atlanta, Ga., and has extensive interests in paper properties in Texas.

Hoosick Falls, N. Y.—Shaw Brothers Paper Box Company, River street, is planning rebuilding of portion of factory recently destroyed by fire with loss reported at close to $17,000, including equipment and stock.

Dexter, N. Y.—The Ron-Noc-O Paper Corporation has been formed by local interests to operate a plant for the manufacture of special paper products of various kinds. The company is capitalized at 200 shares of stock, no par value, and will be represented by Davis, Wagner & Heater, 120 Broadway, New York, attorneys.

Middletown, Ohio.—The Raymond Bag Company, Middletown, has awarded a general contract to the A. M. Higley Company, 2036 East 22nd street, Cleveland, Ohio, for erection of proposed new paper bag manufacturing plant on a tract of about 16 acres of land acquired a number of months ago, located on the Dixie Highway. The mill will be of one-story, brick and steel type, totaling about 110,000 square feet of floor space, estimated to cost close to $300,000, with machinery. Present plant will be removed to the new location and capacity increased. An award for plumbing and heating work in the new unit has been made to the Drayer Plumbing Company, Middletown. Lockwood, Greene Engineers, Inc., Hanna Building, Cleveland, are architects and engineers.

Philadelphia, Pa.—The Superior Paper Box Company, 625 West Thompson street, manufacturer of paper boxes and containers, has leased the three-story and basement building at 905 North Lawrence street, and will occupy for storage and distributing service.

Shelton, Wash.—The Rainier Pulp and Paper Company, Shelton, with headquarters at 534 Battery street, San Francisco, Cal., is arranging for a bond issue to total about $2,500,000, a portion of the proceeds to be used for general operations, financing and future development of plant and equipment. W. L. Raymond is secretary and treasurer.

Washington, D. C.—A plant unit for the manufacture of paper bottle caps, covers, etc., is being planned by the American Dairy Supply Company, 430 Delaware avenue, S. W., consisting of a two-story structure, 30 x 100 feet, and one-story extension to an existing building, 50 x 100 feet, reported to cost over $50,000, with equipment. Work will be placed under way at an early date. General contract for superstructure has been awarded to the Meatyard Construction Company, 5517 Connecticut avenue, S. W., Washington.

Chicago, Ill.—The Remington-Jensen Paper Company, 667 West Lake street, Chicago, has arranged for an increase in capital from $10,000 to $50,000, for general expansion.

Oswego, N. Y.—The Snow-White Company, Inc., recently formed by W. Jay Russell, 129 Fourth street, West, Oswego, and associates, plans operation of a local plant for the production of paper specialties of various kinds. The company is capitalized at 15,000 shares of stock, no par value. Fred D. Cribb, 244 Main street, North, Canadaigua, N. Y., is interested in the new company, as well as William J. Diel, 269 Valley street, Dayton, Ohio.

Pittsburgh, Pa.—The D. J. Rex Box Company, Boyd and Locust streets, Pittsburgh, manufacturer of paper boxes and containers, etc., is considering the rebuilding of portion of plant recently destroyed by fire with loss estimated in excess of $75,000, including building, equipment and stock. Reconstruction is expected to cost a like sum.

Plymouth, Pa.—Millard F. Saul, 219 West Magnolia street, Hazleton, Pa., and associates have organized a new company under the name of the Saul Folding Box Company, capitalized at $20,000, with headquarters at Plymouth. It is proposed to operate a plant at that place for the production of folding paper cartons of various kinds. Others interested in the new company include Alexander S. and Mervin L. Saul, 728 West Diamond avenue, Hazleton.

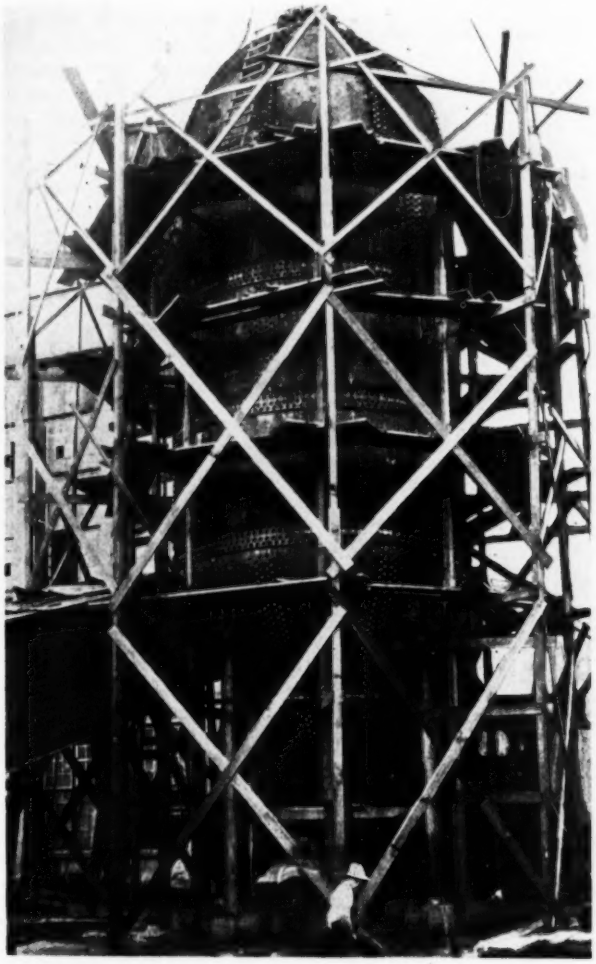
Holyoke, Mass.—The Holyoke Water Power Company, Holyoke, is said to be planning an addition to its hydraulic electric power station on the Connecticut River, to cost over $100,000, with equipment. Application for permission has been made.

Crawfordville, Ark.—The World Fibre Company, 77 West Washington street, Chicago, Ill., manufacturer of fibre and affiliated products, is reported planning establishment of a group of three new raw material mills in the South, the units to be constructed and operated by the Delta Fibre Corporation, an affiliated organization. It is proposed to locate one of the plants at or near Crawford, Ark., and another in the vicinity of Earle, Ark., with the third mill on a site to be selected in Mississippi. Estimated cost of project has not been announced. W. C. Miller is one of the heads of the parent organization.

New Incorporations

New York, N. Y.—M. F. McCarthy, Inc., has been incorporated with a capital of $10,000, to manufacture and deal in paper products of various kinds. Melville G. Newmark, 110 West Ninety-sixth street, New York, is one of the incorporators. The company will be represented by Joseph G. Wiman, 545 Fifth avenue, New York.

Newark, N. J.—The Ummer Paper Company has been incorporated with a capital of 200 shares of stock, no par value, to manufacture and deal in paper specialties of various kinds, including paper towels, etc. It will take over and expand the



Erecting a Manitowoc Digester

For more than a quarter of a century we have been designing and building paper mill equipment. In all these years many installations have been made in mills in the United States and Canada. Repeat orders indelibly indicate the kind of service Manitowoc equipment is giving.

It will pay you, when in the market, to consult us—to let our engineers co-operate with you. An inquiry does not obligate you.

We design and build barking drums, sulphite digesters, experimental digesters, globe rotary digesters, cylindrical digesters, rotary lime kilns, incinerators, disc evaporators, air nozzles, diffuser tanks and swing pipes, bleach and clay mixers, rod mills, Moore speed-cranes, shovels, draglines and trenchoes.

MANITOWOC ENGINEERING WORKS

MANITOWOC, WISCONSIN

similar business heretofore conducted by Fred W. Ummer, 1060 Broad street, who is one of the incorporators of the new company. The new organization will be represented by J. Glenn Anderson, 31 Clinton street, Newark, attorney.

Detroit, Mich.—The Floral City Paper Stock Company, 1458 Clinton street, Detroit, has been incorporated with a capital of $25,000, to deal in paper goods of various kinds. The incorporators are A. Tisdale and Max Monroe.

Chicago, Ill.—The Zorn-Bierdeman Paper Box Company, 606 North Oakley Boulevard, manufacturer of paper boxes and containers, has filed notice of company dissolution under state laws.

Indianapolis Demand Spotty

INDIANAPOLIS, Ind., March 9, 1931—Paper demand in this territory is very spotted. In some lines it appears that some increase will be noted this month over the same month a year ago, but in others trade is very dull. However, there is a well defined feeling of optimism in the trade. Most of the individual members seem to believe that 1931 will surpass last year without much of a struggle. There is considerable competition for business and prices quoted are about as low as they could get in all grades of paper. Stocks with local jobbers are being held as low as is consistent with good business principles. Fine papers seem to be holding their own fairly well. The demand is rather restricted, but some of the users seem to be busy and have orders that will create a later demand of fair proportions. The cheaper grades of writing papers and bond are not so well sustained.

Mills in Indiana, most of which produce corrugated and fiber board, are marking time. Most of them are producing but their production schedules have been cut to suit the demand and there is no indication of any early improvement.

Wrapping paper also is slow, with little chance of improvement until the spring season actually opens. Paper bags are selling only fairly well, but are holding their own as compared with a year ago.

Some early buying of building papers has been reported and the volume will compare favorably with that of the same season last year. Much of the volume done during the remainder of this month will depend largely on the weather. Stocks in retail yards are very low and will be held to a low level until the trend of Spring and Summer building is more accurately determined.

News of the Pacific Coast Industry

PORTLAND, Ore., March 7, 1931.—The Crown-Willamette Paper company has put a logging crew of 150 men at work at its camp at Young's Bay, near Astoria.

E. W. G. Cooper, formerly superintendent of the Don Valley Paper Mills, Toronto, and recently associated with the Racquette River Paper Company of Potsdam, New York, is now with the Crown-Willamette Paper Company's plant at Camas, Wash., as paper maker.

The story of Blake, Moffitt & Towne, "Pioneers In Paper," is the title of an attractive and unique booklet just published by Blake, Moffitt & Towne in celebration of their 75 years in the paper business. The publication is a valuable contribution to the paper industry in general in that it covers authentically the period of development from early pioneer days in the west.

The Keystone Paper Box Company of Seattle has increased its capital stock from $40,000 to $75,000.

Government Paper Awards

WASHINGTON, D. C., March 9, 1931—Reese & Reese have been awarded the contract for furnishing the Government Printing Office with 560 sheets of high finish red sulphite paper at 7.95 cents per pound, bids for which were received on February 20. The Whitaker Paper Company will furnish pink gummed paper at $11.80 per M sheets, bids for which were received on the same date.

Logging Operations Concluded

[FROM OUR REGULAR CORRESPONDENT]

LYONS FALLS, N. Y., March 9, 1931.—Logging operations were concluded last week by the Gould Paper Company at its North Lake camp and weather conditions have been a big aid. In the neighborhood of 30,000 cords of pulpwood are now on the skidways awaiting the annual spring drive down the Moose River to the mills in this village and this task will require the employment of a large force of lumberjacks. Activities were started at the company's tract before the holidays with a force of about 200 men under the supervision of John B. Todd while several tractors also assisted in pushing the project to completion. Officials of the paper company claim that about half a mile in the river is serving as a landing place for the logs and the drive this year is expected to be the largest ever recorded. For a time mild weather was feared during January but freezing temperatures prevailed with the result that very little difficulty was experienced in hauling the logs to the skidways. While weather conditions have been favorable it is claimed that water conditions are the worst in years and the flow of the Moose River is much below normal. The water shortage has handicapped the mills here for some time with the result that operations have been curtailed to some extent.

The Gould Paper Company is recognized as among the few in this section now securing its supply of pulpwood from the Adirondacks and it now holds clear title to a tract comprising about 100,000 acres at North Lake. These holdings were acquired through the foresight of officials of the firm and a system of scientific cutting has been established which is calculated to afford a perpetual supply of pulpwood for the paper mills. Each year about the same amount of timber is hewed with the cutting consisting mainly of spruce, balsam and hemlock. A system has been perfected to enable the tract to replenish itself and by the time the timber has been covered once the stand of mature timber suitable for pulpwood will be ready again.

At Tupper Lake, the Oval Wood Dish Company has completed a lumbering contract calling for 8,000,000 feet of timber and the drive this year will be one of the largest ever attempted. The company has concentrated its activities in the vicinity of Santa Clara where the logs were hewed and placed on the skidways last summer. A force of several hundred men were employed steadily during the winter months and a fleet of tractors were used in hauling the logs to the factory of the Oval Wood Dish Company. At Bay Pond, a cutting of about 4,000,000 feet was also made. Another important project just completed was the hewing of about 2,000,000 feet of timber by Charles N. Tate for the Elliot Mangle Roll and Lumber Company and the hauling operations were similar to those prevailing in the other camps.

New Flexi-Units Pumps Developed by Goulds

A new line of centrifugal pumps which offers 150 different pumping combinations, from a stock of 11 standard pump units and 9 universal bedplates has been brought on the market by Goulds Pumps, Incorporated, Seneca, Falls, N. Y.

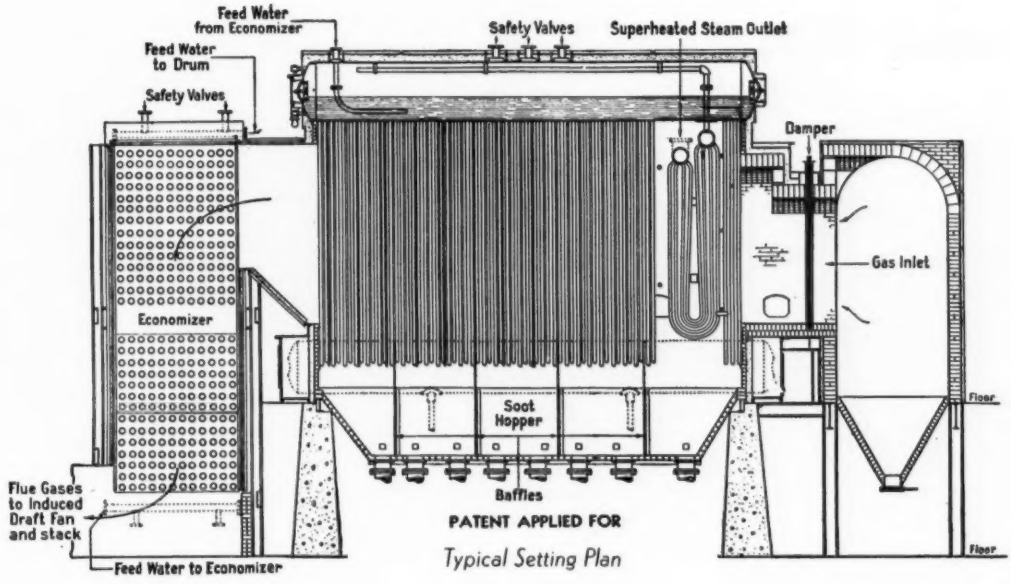
The universal bedplates of these new "Flexi-Unit" pumps simplify the mounting of any size motors, from ¼ to 50 horsepower, with speeds from 1450 to 3450 revolutions per minute.

The standard pump units with changeable impellers assure capacities from 10 to 1100 gallons per minute, at heads up to 350 feet.

The development of the Flexi-Unit line, enables mill supply houses and equipment distributors to furnish a high efficiency, motor driven centrifugal pump from a limited stock, without the long delay occasioned by the average built-to-order, factory pump job.

Complete standardization of parts accounts for the easy selection of a pumping unit from a local stock, the high efficiency and the low price of Flexi-Unit pumps.

A New Three Drum Waste Heat Boiler



PATENT APPLIED FOR

Typical Setting Plan

High Heat Transfer and Effective Dust Precipitation Methods are Features of the new Babcock & Wilcox Waste Heat Boiler

Babcock & Wilcox Boilers for utilizing the waste heat in gases from industrial processes have been built since 1874.

Details of this boiler will be gladly furnished upon request ... simply ask for Bulletin G-10.

The Babcock & Wilcox Company announces the creation of a new waste heat boiler of the three drum single-pass type which possesses several important features. Gases flow through the boiler in one horizontal pass, but the arrangement is such as to secure the effect of multiple passes, with a high rate of heat transfer and a draft loss that is unusually low.

Dust precipitation is insured by the horizontal gas flow, vertical tubes, and a unique baffling system. Boilers of this type have operated for six months in cement mills with so little dust collection on the tubes that no increase in the draft loss could be detected by the usual gauges.

The upper drum and tubes are free to expand and contract without disturbing the steel casing or its refractory lining. Air infiltration is thus reduced to a minimum and the greatest source of brick troubles eliminated.

THE BABCOCK & WILCOX COMPANY

85 LIBERTY ST. NEW YORK, N. Y.

G-102

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending December 31, and for the Twelve Months Ending December 31, 1930 Compared with Corresponding Month of Previous Year

IMPORTS—PAPER

	December				Twelve Months Ending December 31			
	1929		1930		1929		1930	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
PAPER AND MANUFACTURES	.....	$14,814,345	.....	$12,144,879	.....	$163,184,327	.....	$147,439,758
Printing paper—								
Standard news print ....lbs...free	461,156,693	13,540,746	388,288,428	11,168,811	4,845,401,341	144,492,736	4,559,303,478	131,800,333
Imports from:								
Finland ....lbs.	5,879,670	132,872	6,866,468	160,439	65,213,906	1,564,362	83,592,327	1,930,971
Germany ....lbs.	1,340,924	32,728	4,352,712	105,608	18,499,244	453,464	27,578,736	672,693
Norway ....lbs.	1,338,808	36,839	2,394,082	58,160	6,996,997	177,821	18,654,734	444,155
Sweden ....lbs.	10,661,956	263,842	12,780,307	312,670	101,438,043	2,576,079	138,534,161	3,433,757
Canada ....lbs.	418,954,422	12,425,528	327,961,762	9,561,120	4,389,174,594	132,282,041	3,978,570,153	116,470,307
Newfoundland and Labrador....lbs.	22,980,913	648,937	33,933,097	970,814	263,829,909	7,433,636	312,372,024	3,848,403
Other countries ....lbs.	.....	.....	.....	.....	248,648	5,333	1,323	47
All other, n. e. s....lbs...dut.	342,241	18,279	288,917	10,326	4,359,782	220,509	2,600,992	122,340
Greaseproof and waterproof papers....lbs...dut.	81,294	21,621	39,871	7,604	1,776,599	460,137	1,035,273	295,425
Kraft wrapping paper....lbs...dut.	693,804	32,108	409,685	15,956	9,796,151	423,187	7,584,206	296,864
Other wrapping paper....lbs...dut.	488,260	24,339	18,695	3,807	7,115,166	221,278	2,540,362	143,070
Writing and drawing paper, etc.....lbs...dut.	264,607	80,424	245,447	47,755	3,226,740	892,952	3,406,660	831,378
Writing paper and envelope combinations ....dut.	.....	.....	.....	16,634	.....	.....	.....	263,422
Surface-coated paper ....lbs...dut.	155,475	65,978	130,592	49,049	2,452,236	1,046,201	1,856,846	750,715
Uncoated paper, decorated or embossed..lbs...dut.	.....	.....	14,291	3,009	.....	.....	92,200	28,969
Tissue and similar papers....lbs...dut.	385,977	212,676	.....	.....	5,008,881	2,667,680	2,056,030	1,130,184
Weighing not over 6 pounds to the ream ....lbs...dut.	.....	.....	104,295	80,203	.....	.....	730,693	471,147
Other ....lbs...dut.	.....	.....	35,383	17,677	.....	.....	275,002	111,422
Paper boards, n. e. s.—								
Pulp board, in rolls....lbs...dut.	3,383,232	70,683	1,033,350	22,967	58,724,555	1,271,740	42,814,553	970,095
Paper board, pulp board, n. e. s., and card board ....lbs...dut.	1,329,201	31,737	799,374	16,575	20,488,302	486,231	13,893,259	332,852
Leather board, test and wall board..lbs...dut.	97,905	4,532	85,174	4,776	2,048,444	86,106	1,615,178	103,315
Cigarette paper, cigarette books, and covers ....lbs...dut.	605,935	213,899	1,461,768	336,545	11,687,109	3,921,984	14,168,393	4,290,682
Hanging paper (wall paper)....lbs...dut	432,607	88,000	285,504	58,477	2,875,860	750,027	2,144,884	618,343
Duplex decalcomania paper, not printed..lbs...free	20,049	4,777	48,238	11,060	585,524	145,870	502,276	118,542
Paper boxes ....dut.	.....	100,628	.....	80,399	.....	1,720,093	.....	1,251,792
Papier-mâché and pulp manufacturers, n. e. s. ....dut.	.....	41,250	.....	38,516	.....	580,547	.....	543,395
All other paper and manufactures....dut.	.....	262,668	.....	154,733	.....	3,797,049	.....	2,965,273

WOOD PULP

Mechanically ground wood pulp....tons..free	32,309	856,156	.....	.....	244,162	6,245,776	128,828	3,593,166
Unbleached ....tons..free	.....	.....	23,616	562,556	.....	.....	133,785	3,435,038
Bleached ....tons..free	.....	.....	513	9,114	.....	.....	4,580	118,086
Sulphite wood pulp....tons	82,438	4,961,388	84,100	4,409,921	1,035,691	60,677,585	988,135	55,920,650
Unbleached ....tons..free	50,270	2,527,921	57,027	2,650,615	701,456	35,328,982	665,049	33,193,598
Bleached ....tons..free	32,168	2,433,467	27,073	1,759,306	334,235	25,338,603	323,086	22,727,052
Imports from:								
Finland ....tons	13,536	682,529	11,122	505,163	116,427	5,584,217	107,148	5,213,041
Germany ....tons	4,783	337,755	4,966	303,482	62,293	4,348,415	65,139	4,311,830
Norway ....tons	4,531	323,571	4,171	246,374	57,637	3,916,985	56,959	3,606,884
Sweden ....tons	25,049	1,414,369	37,123	1,824,948	397,351	21,925,767	385,600	20,538,626
Canada ....tons	31,892	2,048,536	23,389	1,386,259	378,034	23,609,440	351,594	21,167,731
Other countries ....tons	2,647	154,628	3,329	143,695	23,949	1,282,761	21,695	1,082,538
Sulphate wood pulp, unbleached (kraft pulp) ....tons..free	35,282	1,799,457	41,178	1,618,135	384,005	20,518,676	357,351	16,447,258
Imports from.								
Finland ....tons	1,643	73,489	1,976	74,251	27,108	1,286,894	33,239	1,414,239
Norway ....tons	1,751	81,794	600	21,645	16,404	847,694	13,071	561,991
Sweden ....tons	23,263	1,134,549	34,436	1,252,910	224,371	11,327,331	242,065	10,283,488
Canada ....tons	8,293	494,979	4,166	269,329	110,366	6,792,782	65,157	4,026,301
Other countries ....tons	332	14,646	.....	.....	5,756	263,975	3,819	161,239
Sulphate wood pulp, bleached....tons..free	776	62,119	3,965	245,296	15,364	1,139,820	19,533	1,468,590
Soda pulp ....tons..free	.....	.....	337	18,621	.....	.....	1,932	126,470
Other pulp ....tons..free	477	36,213	57	5,017	6,050	514,139	2,376	177,527

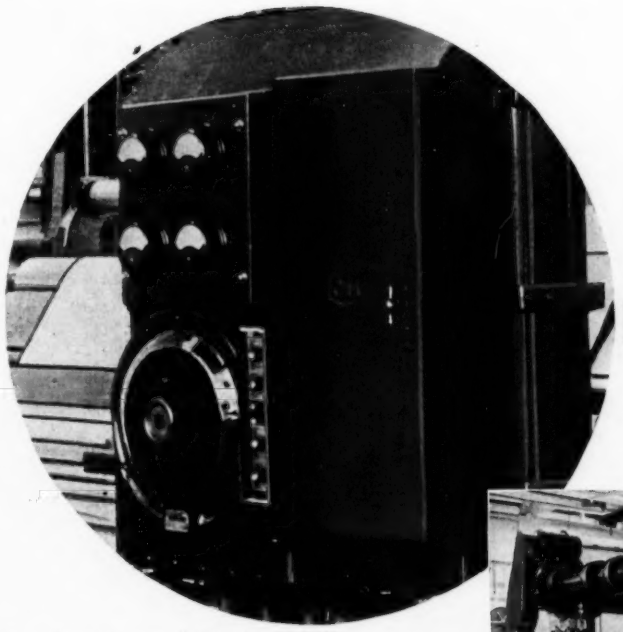
CRUDE PAPER STOCK

Rags for paper stock....lbs...free	41,243,596	817,199	9,525,931	178,085	446,496,028	9,341,795	281,592,177	5,565,340
All other paper stock....lbs...free	23,413,447	294,787	9,643,022	174,799	272,700,303	5,106,000	221,568,051	3,052,291

CHEMICALS AND OTHER PAPER MAKERS' MATERIALS

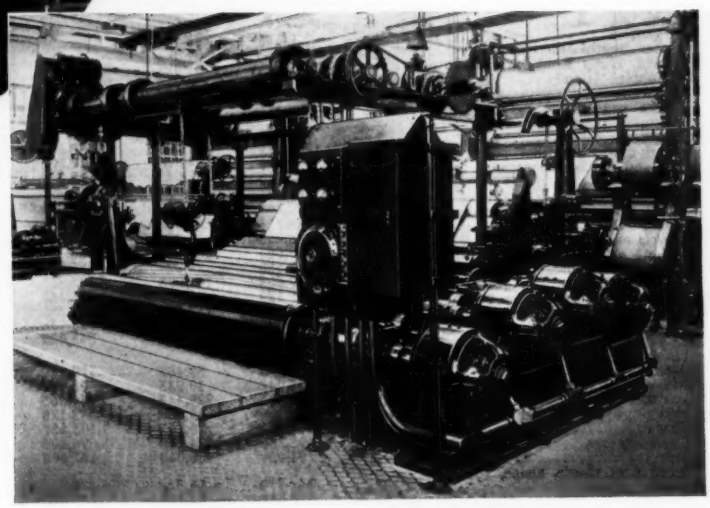
Colors, dyes, stains, color acids, and color bases, n. e. s....lbs...dut.	486,418	516,485	359,106	417,192	7,593,119	8,448,037	4,951,964	5,284,766
Imports from:								
Belgium ....lbs.	4,788	6,589	2,674	2,579	76,259	95,819	63,010	80,686
France ....lbs.	550	502	7,069	8,967	108,312	160,012	43,686	57,239
Germany ....lbs.	252,777	248,426	239,745	270,793	4,685,326	5,019,070	3,102,856	3,318,115
Italy ....lbs.	2,646	2,139	4,844	6,549	13,854	11,626	21,298	24,564
Switzerland ....lbs.	216,979	250,566	92,182	113,943	2,563,469	3,000,159	1,556,607	1,637,126
United Kingdom ....lbs.	6,129	4,492	11,511	12,899	91,957	100,779	114,174	118,765
Other countries ....lbs.	2,549	3,771	1,081	2,262	53,942	60,572	50,353	47,670
China clay or kaolin....tons..dut.	16,892	171,382	7,181	74,388	249,921	2,699,380	210,911	2,177,197
Casein or lactarene ....lbs...dut.	1,743,740	217,147	978,710	50,466	27,583,339	3,323,130	18,499,656	1,919,898

(Continued on page 36)



One rheostat controls the speed of all drums after they have been regulated to suit the grade of paper.

Uniform Roll Hardness by Electrical Control



M & W Four Drum Winder with Electric Drive, in mill of West Virginia Pulp & Paper Co., Williamsburg, Pa.

THE M & W Electric Drive for drum winders applies a smooth, steady tension as the paper goes on the roll. This tension is automatically maintained as the roll grows larger. Toward the end, the tension is slightly reduced—that also being automatic. No counterweighting of the rolls is required except to equalize soft ends, and no regulation after the rheostats are once set to suit the width of the roll and grade of paper.

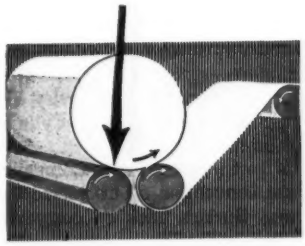
This automatic regulation results from the inherent qualities of direct-current motors and of the method of control used. It is based on constant *pull* of the motors, rather than constant speed. It is fully described in our Bulletin on Four-Drum Winders.

The M & W Electric Drive greatly simplifies the work of getting properly-wound rolls. By minimizing the human element, it reduces the risk of getting rolls too hard or too soft. By reducing spoilage, it increases the salability of the product.

Let us study your present winding methods and advise what saving may be expected from using W & M Four-Drum Winders with Electric Drive.

If you haven't the Bulletin, write for a copy.

Uniform PULL makes *Uniform ROLLS*



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PAPER MACHINE BUILDERS

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PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(Continued from page 34)

EXPORTS—PAPER

	December 1929 Quantity	December 1929 Value	December 1930 Quantity	December 1930 Value	Twelve Months Ending December 31 1929 Quantity	Twelve Months Ending December 31 1929 Value	Twelve Months Ending December 31 1930 Quantity	Twelve Months Ending December 31 1930 Value
PAPER AND MANUFACTURES	.....	$3,137,748	.....	$1,978,574	.....	$37,086,009	.....	$30,301,759
Printing paper—								
News print paper ..... lbs.	6,503,114	210,225	1,063,760	36,966	37,390,727	1,345,873	20,408,360	812,231
Exports to:								
Europe ..... lbs.	75,462	5,629	65,694	1,963	911,310	56,010	1,915,279	96,101
Canada ..... lbs.	7,080	234	13,990	448	762,060	36,940	68,187	2,594
Central America ..... lbs.	108,335	4,055	131,020	5,211	1,758,407	63,928	1,450,316	53,347
Cuba ..... lbs.	505,205	19,427	135,641	4,868	3,544,014	128,651	3,138,926	132,717
South America ..... lbs.	4,408,783	133,132	171,295	5,653	14,979,796	508,593	4,339,588	147,589
China, Hong Kong, and Kwantung... lbs.	47,411	1,742	24,678	903	4,478,718	152,355	2,019,151	109,638
Philippine Islands ..... lbs.	1,237,813	41,081	470,817	15,704	9,166,502	319,086	6,468,080	226,200
Other countries ..... lbs.	113,025	4,925	50,625	2,216	1,789,920	80,310	1,008,835	43,845
Book paper, not coated ..... lbs.	4,109,161	266,365	1,817,399	134,028	37,817,028	2,651,325	31,846,407	2,155,175
Exports to:								
Europe ..... lbs.	48,400	9,221	115,930	17,811	1,596,952	155,688	1,922,867	157,974
Canada ..... lbs.	1,154,456	66,345	282,764	20,704	12,198,178	725,272	9,573,644	583,721
Mexico ..... lbs.	36,712	4,193	15,493	2,326	570,858	60,244	619,214	67,277
Cuba ..... lbs.	644,110	38,907	311,036	19,622	5,344,241	370,890	3,949,660	263,810
Argentina ..... lbs.	113,233	11,820	66,654	5,335	1,911,475	153,758	1,406,245	101,793
Other South America ..... lbs.	140,359	11,132	102,139	6,494	1,355,886	115,710	1,671,965	127,789
China, Hong Kong, and Kwantung... lbs.	1,450,759	85,248	12,987	1,768	7,907,850	480,048	5,157,773	319,298
Philippine Islands ..... lbs.	332,852	24,254	436,196	28,618	4,050,300	277,741	3,796,287	249,727
Australia ..... lbs.	21,281	2,198	62,930	4,651	1,092,349	161,177	908,223	72,201
Other countries ..... lbs.	166,999	13,047	411,270	26,699	1,788,939	150,797	2,830,538	212,275
Cover paper ..... lbs.	178,235	31,043	128,781	21,305	2,053,996	356,445	2,192,168	343,489
Greaseproof and waterproof paper ..... lbs.	294,994	41,485	295,502	60,033	2,908,120	526,281	3,805,193	741,557
Overissue and old newspapers ..... lbs.	20,608,305	194,608	18,652,906	131,869	154,078,379	1,668,085	171,312,274	1,335,118
Wrapping paper ..... lbs.	3,960,644	287,682	2,952,048	169,527	43,882,689	2,957,204	44,247,669	2,759,441
Surface-coated paper ..... lbs.	2,376,327	188,553	270,207	35,172	17,317,750	1,576,916	7,567,037	866,763
Tissue and crêpe paper ..... lbs.	410,530	84,219	293,654	52,302	4,798,279	1,061,250	4,761,586	919,036
Toilet paper ..... lbs.	536,713	62,550	463,389	54,106	7,034,753	787,919	7,420,413	811,976
Paper towels and napkins ..... lbs.	290,855	31,806	209,817	24,257	3,617,953	435,245	3,910,747	451,077
Boxboard of paperboard and strawboard.... lbs.	4,230,964	109,685	2,368,341	60,504	53,458,595	1,424,446	60,370,000	1,498,914
Bristols and bristol board ..... lbs.	243,150	24,229	195,595	18,326	2,908,260	286,400	2,313,956	219,473
Other paper board ..... lbs.	4,619,603	191,098	2,382,988	100,445	47,316,516	2,096,850	33,636,482	1,606,638
Sheathing and building paper ..... lbs.	1,385,129	48,701	1,125,367	38,862	22,495,979	757,005	18,798,454	635,791
Fiber insulating lath or board ..... sq. ft.	3,387,043	112,684	2,903,399	106,308	30,019,072	1,013,766	62,498,770	2,008,503
Wall board of paper or pulp ..... sq. ft.	3,676,991	121,728	1,793,138	60,410	68,404,440	2,233,383	30,090,007	999,307
Blotting paper ..... lbs.	242,615	30,694	245,429	28,795	3,606,483	428,997	3,114,885	378,802
Filing folders, index cards, and other office forms ..... lbs.	147,575	53,482	179,780	59,009	1,633,954	599,260	1,642,026	604,543
Papeteries (fancy writing paper) ..... lbs.	34,942	10,523	27,740	7,741	855,149	207,990	650,598	147,351
Other writing paper ..... lbs.	2,114,406	229,442	1,344,565	139,808	27,990,687	2,955,732	21,064,051	2,070,040
Paper hangings (wall paper) ..... rolls	.....	39,888	342,128	41,489	.....	581,684	3,227,269	465,409
Paper bags ..... lbs.	945,693	76,147	1,103,257	78,316	12,060,191	1,009,789	11,249,662	892,538
Boxes and cartons ..... lbs.	1,592,386	124,138	1,096,606	81,384	28,120,494	1,891,939	22,714,876	1,370,631
Envelopes ..... lbs.	203,024	36,040	157,642	28,563	2,421,472	428,551	2,229,246	372,264
Vulcanized fiber sheets, strips, rods, and tubes ..... lbs.	364,779	91,543	346,795	80,057	6,116,832	1,487,714	4,577,711	1,139,978
Cash-register and adding-machine paper ..... lbs.	392,619	39,121	329,676	34,683	5,507,358	522,125	4,418,949	423,694
Other paper and paper products	.....	400,069	.....	294,309	.....	5,793,835	.....	4,272,020

WOOD PULP AND PAPER STOCK

Sulphite wood pulp ..... tons	2,229	125,683	2,653	131,427	39,154	2,116,428	31,331	1,672,359
Soda wood pulp ..... tons	175	14,198	37	2,492	1,961	159,988	1,808	140,774
Other wood pulp ..... tons	1,376	72,589	23	1,392	7,160	453,007	10,099	257,420
Rags and other paper stock ..... lbs.	5,387,775	108,187	4,137,262	47,958	108,415,529	1,884,610	62,143,086	840,189

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery	.....	182,571	.....	137,341	.....	3,916,936	.....	3,511,496

Cost and Technical Association Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., March 9, 1931.—The Cost and Technical Association of the Paper Industry, Kalamazoo Valley local division, listened to reports on the recent New York convention, at its meeting held Wednesday evening at the Columbus hotel.

Arthur Dreshfield, Papermakers Chemical Corporation, gave the first talk, which covered reports on committees on Non-Fibrous material and a review on the papers on Chlorine, Lime and Limestone.

Kent Kidder, Allied Paper Mills, reviewed Fred Stamm's paper on Heat Transfer Through Drying Cylinders, also a paper on drying temperatures.

Harry C. Bradford, of the Rex Paper Company, gave a general report from the cost convention. This included selling cost and a review of Thomas Burke's book on comparing your 1929-30 profits with the years 1927-1928.

At the close of the regular session, the executive committee in charge of arrangements for the Tri State Cost and Technical meeting, to be held May 22 and 23, met. Frank Whittington, chairman, reports that it has been determined to devote the Saturday morning, May 23, to golf and bowling tournaments, thus taking care of any who do not go in for golf.

The program is rounding to in good shape. The committee will lay out a definite schedule for these papers and this schedule is to be adhered to rigidly. That will make it possible for delegates to hear the papers on subjects they are interested in and as presented in the cost and technical sections.

Speaks on Pacific Coast Paper Industry

C. W. Morden, chairman of the Pacific Coast section of TAPPI was one of the principal speakers at the monthly meeting of the Portland, chapter of the American Society of Mechanical Engineers held late in February. His theme was a brief history of the pulp and paper industry in the Pacific northwest. Others who spoke along similar lines were C. C. Hockley, pulp and paper mill engineer and Ray Smythe, president of the Willamette Iron and Steel Works, which manufactures paper mill machinery.

TECHNICAL BOOKS

for

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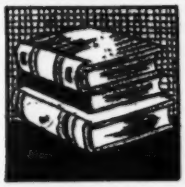

CHEMISTRY *of the* SULPHITE PROCESS

by R. N. Miller and W. H. Swanson

M. W. Bray, R. Soderquist, T. M. Andrews,

W. H. Mansson

The papers which constitute this book appeared originally in the trade and technological journals as current reports of the progress of investigations under way at the United States Forest Products Laboratory for a period of about six years beginning with 1921. This information is the accumulation of years of experience. The method by which sulphite with the desired properties is to be made, the conditions under which it must be cooked, the strength of acid to be used, the equipment, operation and materials are all fully covered in this book. Included in this volume also is "Sulphite Pulp from Spruce" by Donald E. Cable.

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PAPER MAKING MATERIALS

by Clarence J. West

In this edition, the literature has not only been brought up to date, but many additions have been made to the earlier work.
The paper making materials have been listed in dictionary style under the common and botanical names, the references being given only under the latter.
Books and articles are listed under the author (or title) in the dictionary arrangement, and to refer under each material, to the author, and the year of publication.
This list includes all the woods tested at the Forest Products Laboratory, as well as many tested by the Imperial Institute of Great Britain and by other workers.

PRICE $3.00

PAPER TESTING METHODS

Method of procedure for adoption of official paper testing methods by the Technical Association of the Pulp and Paper Industry. The work on standardization of paper testing methods is divided as follows: Microscopic, Physical, Chemical, Optical Tests for Special Uses of Paper.

A number of new proposed methods and testing instruments are described, and much of the text has been rewritten wherever found necessary as a result of developments since the previous edition.

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BIBLIOGRAPHY OF PAPER MAKING, 1900—1928

by Clarence J. West

A complete record of the literature relating to the manufacturing of pulps and papers published throughout the world from 1900 to September 1928.

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PAPER MAKING LITERATURE

Technical men throughout the world who read the PAPER TRADE JOURNAL will be pleased to learn that the pulp and paper literature abstracts will hereafter be kept up to date in the Technical Section of this publication.

Although the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry under the able chairmanship of Dr. C. J. West has always done a remarkable piece of work in preparing the abstracts, there have been publishing problems that have made it difficult to give the necessary space for printing them.

An important contributing factor to this problem has been the great increase in the volume of technical literature relating to pulp and paper manufacture which has appeared in the past few years. The reviews of the patents granted would alone require considerable space.

An arrangement has now been made to provide the additional space necessary from time to time to publish the abstracts as soon as they are released by the TAPPI committee. It is furthermore planned to do this without reducing the space devoted to the original articles submitted by the association.

The PAPER TRADE JOURNAL is the only publication printing all of the TAPPI abstracts. In doing this the Lockwood Trade Journal Company again evidences its desire to render a needed service to the industry. By studying the abstracts and bibliographies it is possible for readers of the PAPER TRADE JOURNAL to keep intimately in touch with all the pulp and paper literature irrespective of its original source or language.

The Technical Association Committee on Abstracts and Bibliography through the office of Dr. C. J. West at the National Research Council in Washington, D. C., has made arrangements whereby photostatic copies of the original articles referred to in the abstracts may be obtained.

It has been stated by Hollis Godfrey of the Engineering-Economics Foundation that factual knowledge always precedes material wealth which reminds us of the old proverb, "In good books lie buried treasures." There should be little difficulty in converting much of the published information into dollars by applying it with good judgment in the manufacturing operations.

The PAPER TRADE JOURNAL wishes to commend Doctor West and the Technical Association of the Pulp and Paper Industry for the wonderful service they are giving to the industry.

ARBITRATION PRACTICE

The American Arbitration Association announces the publication of a "Code of Arbitration Practice and Procedure," presenting for the first time in this country a standard, organized practice of arbitration now in use by business men and attorneys and which may be applied to the settlement of business controversies in any jurisdiction in the United States.

The code will be distributed by the Commerce Clearing House, Inc., Loose Leaf Service Division of the Corporation Trust Company, and is the result of five years experience in the American Arbitration Tribunal, in which 2,500 parties and 500 attorneys have participated in the arbitration of controversies involving many millions of dollars and substantial rights. The Tribunal is now effective in 1,700 cities, with 7,000 arbitrators serving without compensation, when called upon, thus establishing arbitration on an honorary basis in this country.

During this five-year period, 2,254 disputes have been submitted to the Tribunal. The Code shows that of the 1,094 awards rendered in the Tribunal in the cases that proceeded to hearings, only six have been seriously attacked in the courts and all six awards were sustained, not one party losing an award through subsequent litigation. Of these six cases, four involved the conduct of the arbitrators and all were sustained by the courts.

The code indicates that the average cost of an arbitration proceeding is $35.00. As the arbitrators serve without compensation, this amount covers the actual costs incurred in arranging the proceedings and conducting the hearings, but not any additional expenses which are voluntarily incurred by the parties themselves.

The association also announces that the code will be accompanied by a monthly information service bulletin, called the American Arbitration Service, which will provide arbitrators, parties and attorneys with up to date information on current arbitration affairs. In addition there is included a personal service, consisting of data on current arbitration problems, state practice sheets, giving details of procedure under different statutes and similar information.

To administer the American Arbitration Tribunal, the code and the service effectively, the board of directors of the association has appointed a Permanent Advisory Council, with Frank H. Sommer, Dean of the New York University Law School, as chairman. The other members are: Hermann Irion, Manager, Steinway & Sons; Wm. Fellowes Morgan, Jr., Treasurer, Brooklyn Bridge Freezing and Cold Storage Company; Lee J. Eastman, president, Packard Motor Car Company of New York; Dr. Nathan Isaacs, Harvard Graduate School of Business Administration; Frances Kellor, first vice-president, American Arbitration Association; S. Whitney Lan-

don, lawyer; Floyd B. Odlum, vice-president, Electric Bond and Share Company; Franklin E. Parker, Jr., of Parker & Garrison; and Hon. Thomas B. Paton, general counsel, American Bankers Association.

In addition to recording the progress of organized arbitration in the United States under arbitration laws, the code implements the existing arbitration laws and supplies a procedure where there is no law, thus overcoming to a great extent the diversity in state arbitration laws and the present differences in practice.

Lucius R. Eastman is president of the American Arbitration Association and Felix M. Warburg, chairman of its board of directors. Its vice-presidents include: Horace B. Cheney, Monte M. Lemann, James R. MacColl, Charles Nagel, Floyd B. Odlum, John H. Puelicher, Robert Goodwyn Rhett, Julius Rosenwald, Robert E. Tally, E. G. Van Hoesen, Harry A. Wheeler and Evans Woollen.

Receivers for Minnesota & Ontario

A dispatch from Minneapolis, Minn., to the *Wall Street Journal* says that Edward W. Backus, president of the company, E. W. Decker and Charles R. Fowler have been named receivers for the Minnesota and Ontario Paper Company. Assets of the company are said to be greatly in excess of both the secured and unsecured indebtedness and warrants the expectation that all creditors eventually will be paid in full. It was asserted that continued operation would best conserve the interest of all concerned.

Seymour Backus, vice-president, said the receivership resulted from the present condition of the money market and the depressed conditions in the news print industry. "The company has been operated profitably for many years. Earnings have been put back into the property. Large sums have been invested in new plants, new equipment and general betterment and there was a definite plan for continued development.

"The company has not felt it necessary to curtail its betterment plans, but relied upon its long established position and its credit for necessary financing from time to time. Existing conditions rendered it impossible at this time to refinance maturing obligations on a safe basis and receivership was decided upon in order that the rights of all creditors and stockholders might be protected pending further negotiations leading to financing the company's obligations."

Minnesota and Ontario Paper Company has news print production capacity of 262 tons daily.

On March 1, 1931, the company had maturing approximately $5,500,000 of 6 per cent gold notes. There are outstanding 37,560 shares of $100 par 6 per cent cumulative common stock. A majority of each issue of stock is owned by Backus-Brooks Company.

A later dispatch says that a district court order has authorized Edward W. Backus, Edward W. Decker and Charles R. Fowler, receivers for Minnesota and Ontario Paper Company, to issue receiver's certificates, payable in six months and bearing 6 per cent interest, and sell them to the International Lumber Company, which is one of a number of Backus controlled companies.

The certificates have priority over all unsecured indebtedness of the Minnesota and Ontario Paper Company, but are subordinate to the first mortgage which is dated April 5, 1925 and all bonds and coupons secured therein.

Screw Press Equipment

Screw press equipment suitable for dewatering and removing liquids is described in a recent bulletin issued by the Valley Iron Works Company, Appleton, Wis.

Object to Invoice Charges on News Print

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 11, 1931.—Representatives of the newsprint industry and newsprint users appeared last week before Assistant Secretary of the Treasury Lowman in charge of Customs objecting to the imposition of an invoice charge of $2.50 a carload on shipments from Canada.

George N. Dale, of Washington, representing the American Newspaper Publishers Association, testified that such a loss would accrue to publishers on news print imports from the Dominion. His testimony, along with that of representatives of news print manufacturers of the United States and Canada, lumber, fertilizer and other industries, was supplemented to that given at the original hearing on the matter in December.

Under existing regulations, it was explained during the hearing, products imported duty free or under specific rates contained in the tariff law, are not required to be accompanied by consular invoices. Imports which are assessed ad valorem rates must have consular invoices, however. These regulations were adopted last August.

Mr. Dale declared there has been no charge of illegal "dumping" of newsprint from Canada, or that this commodity is the product of forced or convict labor, which is specifically prohibited under the tariff law. He said that for these reasons, the requests from certain of the Federal agencies for the consular invoice requirement, in order that such violations might be detected, should not be made applicable to newsprint.

Claiming that products imported from contiguous territory such as Canada and Mexico, are not subject to the same legal restrictions as those from overseas points, James M. Gerry, of New York, attorney for the Northern Border Brokers Association, held that certain products from these countries should be freed from the consular invoice restriction. He said the consular invoice is not required by law on duty free and specific duty imports. The estimated revenue of $2,000,000 annually which the Department of State agents receive through the issuance of such invoices should not be considered, he said, because of the losses and inconvenience to American importers.

Mr. Gerry said the invoice is useless on the northern border, since it is not received until after the goods involved have cleared customs and are in actual consumption.

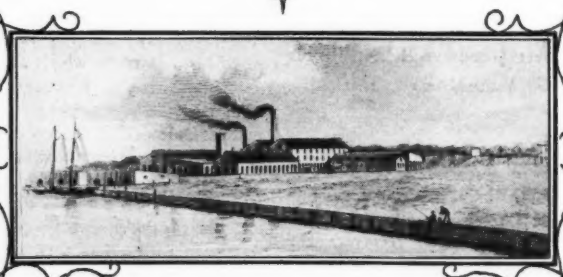
Wilbur La Roe, representing the International Paper Company and the Canadian International Paper Company, testified that the total production of about 2,000,000 tons of newsprint annually in Canada is chiefly exported to the United States. Adoption of the consular invoice, he said, would place an additional burden on this industry which already has suffered, and is striving to regain a normal footing. The invoice, he declared, would be an "embarrassing and harassing tax" to his industry, pointing out that millions of dollars in American capital are invested in the Canadian paper industry.

Representing the American Pulp and Paper Association, Carl E. Whitney, of New York, declared that the fee of $2.50 charged for consular invoices would ultimately be paid by the consumer. He said this cost would not be paid by the Canadian producers, and that it naturally would be transferred to the consumer. Asserting that the present regulations are operating to the satisfaction of all concerned, Mr. Whitney said the fee represents a substantial amount when applied to the imports of newsprint.

Graton & Knight Open Portland Branch

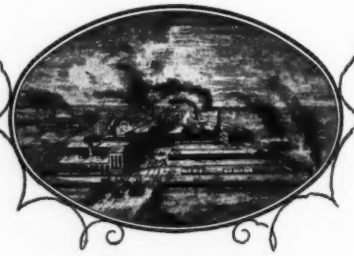
PORTLAND, Ore., March 7, 1931.—Graton & Knight Company, with headquarters in Worchester, Mass., are opening a branch in Portland, Ore., March 1, to be located at 76 First street, from which distribution will be made through Oregon and Idaho. W. F. Kinnally will be manager. The company maintained a branch in Portland previously but has not operated there for some time. Other western branches are at Seattle, San Francisco and Los Angeles.

TO ALL PARTS OF THE COUNTRY



"... the productions of this establishment are shipped to all parts of the country. Lighters convey them up the Sound to the manufacturing establishments of Connecticut, Rhode Island and Massachusetts, and also up the North River, besides the larger amounts that are forwarded by rail; although their works in Buffalo now supply a considerable portion of the Western trade."

IN 1880, "Western trade" was near enough to be supplied by Buffalo; for this quotation is taken from a story entitled, with a flourish, "The Works of Martin Kalbfleisch's Sons" and appearing in a Scientific American that year.



Then there were three plants, at Bushwick, Bayonne and Buffalo. Now there are ten, at points as divergent as Illinois, Arizona and Louisiana.

And we are still growing, in size as well as in skill. Our hundred and one years of furnishing quality chemicals in all parts of the country have given us a solid background from which we can draw for the benefit of our customers.

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ERIE, PA.
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535 Fifth Avenue
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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Determining Bleachability of Pulps*

By R. Karlberg

The following is a brief summary of methods developed for the quantitative determination of the amount of bleach powder or chlorine required for bleaching pulps.

Direct Methods

By bleaching to a standard "whiteness" on an experimental scale the amount of bleach powder, expressed in terms of per cent on the basis of air-dry pulp, is determined.

ARNOT'S METHOD, 1909

Lit: Papierzeitung *34,* 1274 (1909); Schwalbe-Sieber Vol. 2, 211.

To 20 grams air-dry pulp is added about 250 cc mill water and an excess of analyzed bleaching solution. The suspension is stilled from time to time. Compare color with standard samples. An excess of N/10 arsenous acid is added to 5 or 10 cc of the bleach liquor, and is back titrated with N/10 iodine solution.

WREDE'S METHOD, 1909

Lit: Papierzeitung *34,* 806 (1909) Schwalbe-Sieber Vol. 2, 211.

To 83 grams of pulp squeezed by hand (25 grams over-dry basis) is added 500 cc mill water and 225 cc bleach solution, equivalent to N/4 arsenous acid. Bring to 40 deg. C. in 10 minutes and hold at this temperature for 50 minutes. Titrate excess hypochlorite with arsenous acid and starch-iodide paper.

Remarks: Formation of chlorates can occur during heating, which gives high results,—Enso chlorine number is determined by a modification of this method (Pappersoch Travarutidskrift for Finland 1926, No. 20, ref. W. B., 1926 page 1469).

KLEMM'S METHOD, 1909

Lit: Wochenblatt *40.* 3973 (1909) Schwalbe-Sieber, p. 211.

Four cylindrical vessels are respectively provided with 15, 20, 25 and 30 parts bleach powder per 100 parts air-dry pulp. Five grams pulp and 400 cc water are added and the mixtures are held at 30 to 40 deg. C. for 5 hours. Hand sheets are made of the bleached pulp and the color compared.

SINDALL AND BACON METHOD, 1911

Lit: Worlds Paper Trade Review *56;* 817, 977, 1129; *57;* 97 (1911). Schwalbe-Sieber, p. 212.

Five grams pulp plus 20 per cent bleach powder in form of 50 per cent solution plus water to 125 cc. Bleach at 40 deg. C. with occasional stirring to maximum whiteness. Titrate excess bleach with arsenous acid. In case of large excess bleach repeat, using smaller proportion of bleach to pulp. Compare color of handsample with gypsum by a tintometer.

SUTERMEISTER'S METHOD, 1914

Lit: Paper; No. 21 (1914); Schwalbe-Sieber, p. 212.

Three samples of 50 grams pulp are prepared. One of these is defibered in one liter water and diluted to 2-½ liters. Sufficient bleach liquor is added for complete bleaching. Bleach at 35 to 40 deg. C. with constant stirring. Handsheets are made under prescribed conditions and compared with standard samples. In case of under or overbleaching the experiment is repeated with the other samples until the standard color is approached.

Remarks: Standard samples of sulphite pulp are reliable for 5 months if kept in tin containers. Sulphate pulps must be renewed more often.

BERGMAN'S METHOD, 1922

Lit: Teknisk Bilaga till Pappers-och Travaru-tidskrift for Finland, p. 19, (1922).

Ten grams dry pulp is made up to 3-⅓ per cent consistence and bleached at 40 deg. C. for 5 hours, with a bleach liquor of as close to constant alkalinity as possible (the relation of the amounts of active chlorine and free calcium hydrate, expressed in terms of normality, ought to be 1:0.085). The excess of chlorine is determined by titration. Several bleaches are made at various bleach ratios and the *chlorine bleach number* is calculated by a described method. The chlorine bleach number gives the maximum amount of bleach powder which the pulp can consume under certain standard conditions.

Colorimetric Methods

Pulp is treated with certain chemicals in solution. Incrustants in the pulp give rise to a certain color of the fiber or solution. By comparing the resultant color with colors obtained on pulps of known bleachability the bleach requirement can be calculated.

KLASON'S METHOD, 1910

Lit: Papierzeitung *35,* 3781 (1910), Schwalbe-Sieber, p. 265.

22 mg. air-dry pulp is dissolved in 20 cc conc. sulphuric acid. The acid is colored in proportion to the lignin content. Comparison is made with a standard color or with a similar solution from a pulp of known bleachability or lignin content.

Remarks: G. V. Zweigbergk (Schwalbe-Sieber, p. 266) recommends that for strong pulps the sample ought to be 25 mg. and 50 mg. for easy bleaching pulps, with others ranging between 25-50 mg. Dissolve in 4 parts conc. sulphuric acid and 1 part water.

E. RICHTER'S METHOD, 1912

Lit: Wochenblatt *43,* 1631, 3485 (1912) Schwalbe-Sieber p. 263.

Five grams air-dry pulp plus 100 cc of 13 per cent nitric acid are kept in the dark for 1 hour and is then filtered through cotton. 25 cc of the filtrate is compared colorimetrically with a similarly prepared solution from a pulp of known purity and the bleach requirement is calculated.

BJ. JOHNSEN'S METHOD, 1913

Lit: Papierfabrikant *11,* 977 (1913) Schwalbe-Sieber, p. 264.

0.2 grams pulp plus 5 cc. sodium nitrate solution (29.4 grams

* Svensk Pappers-Tidning 33, 558-66 (1930). Translated by C. E. Peterson, member TAPPI, Riegel Paper Corp., Riegelsville, N. J.

$NaNO_2$ per liter) plus 5 cc sulphuric acid (20.8 grams H_2SO_4 per liter) is shaken for 2 minutes in a stoppered bottle. The pulp is collected on a Gooch crucible, and shaken up with 10 cc of a 2 per cent NaOH solution, and allowed to stand for 5 minutes. The color of the pulp is dependent on its purity.

Kraft pulps give a dark brown color, unbleached sulphate pulps a lighter brown color and unbleached sulphites gives a reddish brown color.

Remarks: The method can be used for control in the bleaching of pulp. Bleached pulp gives only a faint yellow discoloration.

Direct Lignin Determination Methods

The longer the cooking time in the preparation of pulp the lower will be the lignin content of the product and consequently the greater its purification and ease of bleaching. Therefore, by quantitatively determining the lignin content the bleachability can be estimated. It is assumed that a definite relation exists between the lignin content of the pulp and the calcium hypochlorite required for bleaching. This relation between lignin content and hypochlorite is different however, for pulps produced by the different cooking methods. In these analytical methods advantage is taken of the fact that cellulose is hydrolyzed by concentrated acids and passes into solution, while the lignin remains insoluble and may be filtered off and weighed. These methods are suitable for scientific work but not for mill control.

E. Becker's method, 1919

Lit: Papierfabrikant *17*, 1325 (1919) Schwalbe-Sieber, p. 275.

To 1.0 gram absolutely dry pulp in a glass beaker add 10-20 cc 72 per cent sulphuric acid and triturate with a glass stirring rod. When the pulp is completely gelatinized add 72 per ent H_2SO_4 to bring the volume up to 80-100 cc. and allow to stand for 24 hours. Add 1-1½ volumes water and filter on asbestos in a Gooch crucible, wash with hot water, dry, weigh, ignite and weigh. Loss in weight represents ash-free lignin.

Remarks: Sieber (Zellstoff u. Papier, No. 8, 1921) recommends the following: The shredded pulp sample is moistened with concentrated hydrochloric acid and allowed to stand in a warm place (not over 40 deg. C.) with occasional mixing with a glass stirring rod. The 72 per cent sulphuric acid is then added. Before the lignin is filtered off, saccharification is computed by diluting the reaction mixture (1:10) and boiling. This method gives slightly high results.

Krull's method, 1916

Lit: H. Krull, Versuche über Verzuckerung der Cellulose; Danzig (1916). Schwalbe-Sieber, p. 102.

One gram alcohol-benzol extracted (absolutely dry) pulp plus 6 cc water treated with gaseous hydrogen chloride in an ice bath until no further change occurs and the reaction mixture has become fluid. If no undissolved cellulose can be detected after standing 24 hours the mixture is diluted with water, filtered and washed with hot water in a Gooch crucible and the ignition loss determined.

Remarks: As in Becker's method it is advisable to convert the cellulose to hydrocellulose with conc. hydrochloric acid before actual saccharification. Dilution and boiling are ordinarily superfluous. Willstätter and Zechmeister (Schwalbe-Sieber, p. 102) use highly concentrated hydrochloric acid (Sp. G. 1.21;—40-42 per cent HCL). W. J. Muller and H. Hermann (Papier fabrikant 1926, p. 185) have proposed using naphthalene as a filter medium in the Korig-Becker and Willstätter-Krull lignin determination methods.

Hägglund's method, 1923

Lit: Meddelanden fran Industriens Central laboratorium, No. *XIV* 1923. Cellulose-Chemie, p. 73 (1923).

Hägglund recommends the following procedure for Willstätter and Zechmeister's method:

Approximately 2 grams dry, and preferably extracted material is shaken for one hour in a stoppered flask with 40 cc. 43 per cent hydrochloric acid. The residual lignin is filtered off directly without dilution and is washed first with acid and then with water, dried at 90 deg. c. and weighed.

H. Schwalbe's method, 1925

To 0.5 gram shredded air-dry pulp add 5 cc hydrochloric acid (Sp. G. 1.07) and agitate well in a 500 cc glass stoppered flask. Add 5 cc hydrochloric acid (Sp. G. 1.07) and 60 cc. 72 per cent sulphuric acid (15 to 20 deg. c.) and shake 10 times by hand, cool to 10-15 deg. c., shake and cool every 10 minutes until the solution can be filtered. Filter on a Gooch, wash with 20 cc 72 per cent sulphuric acid and then with water, dry, weigh, ignite, and weigh.

Remarks: a determination requires about 45 minutes. The method has been tested out on both sulphite and sulphate pulps. Hägglund has shown (Papier fabrikant, p. 406, (1925) that by this method a considerable proportion of the lignin passes into solution, and therefore he does not consider this method suitable for exact lignin evaluation.

Wenzl's method, 1924

Lit: Papierfabrikant, p. 101 (1924)

One gram air-dry pulp (not extracted) is treated in a thick walled glass beaker with 25 cc of a reaction liquor made up of 100 cc hydrochloric acid (Sp. G. 1.19) and 30 grams P_2O_5. . .The beaker is placed in a water bath at 30 deg. C. At the end of one hour with occasional stirring the cellulose will have passed into solution. Add 50 cc. hydrochloric acid (Sp. G. 1.19 and 30 deg. C.), filter on a Gooch, wash with acid, then water, dry, weigh, and ignite.

Remarks: This method has been tested out on both sulphite and sulphate pulps. Phosphorus pentoxide absorbs water and so increases the rate of solution. A determination requires 4 to 5 hours.

Indirect Lignin Determination Methods

These methods involve the quantitative determination of radicles (such as the methyl radical—CH_3 in the oxymethyl groups) in lignin and the result gives a relative measure of the lignin content and consequently of the bleachability of the pulp. Accurate estimation of the lignin by these methods is not yet possible because the molecular weight of lighnin is as yet unknown.

Benedikt and Bamberger's method, 1894

By heating the pulp sample with hydroiodic acid the methoxyl radicle splits off and is vaporized as methyliodide which is absorbed in silver nitrate solution. The precipitated silver iodide is weighed and the methoxyl content is calculated on the basis of dry pulp. According to Sieber the methyl content of pectin does not have to be taken into consideration.

Lit: Monatshefte f. Chemie 15,509 (1894)—Schwalbe—Sieber, p. 103. 0.1=0.3 gram of a representative sample of air dry pulp and 10 cc. hydroiodic acid (Sp. G. 1.7) and a little red phosphorus is heated in an atmosphere of CO_2 to 150 to 160 deg. C. on an oil bath. The CH_3I vapors are first passed through a wash bottle containing 0.25 grams red phosphorus in water and is then absorbed in 25 cc of 4 per cent alcoholic silver nitrate solution. The silver iodide is filtered off, washed, and dried at 120 deg. C. The methyl number is calculated.

Remarks: Seiber discusses some details of procedure. (Schwalbe-Sieber p. 279). The methyl number for various pulps lie between 1.5 and 9.

Fellenberg's method, 1917

By heating pulp with sulphuric acid the methyl radical splits off in the form of methyl alcohol which is quantitatively estimated and the methyl number calculated. According to Sieber the alcohol from any pectin present is neglible.

Lit: Schwalbe-Sieber, p. 278

The method, according to Sieber, is as follows: 0.6 - 0.7 grams hard pulp, or 1.0 gram medium hard pulp, or 1.3 - 1.7 grams bleached pulp is extracted with ether and alcohol. The washed pulp is boiled gently for 10 minutes with 15 cc. 72 per cent H_2SO_4 in a 400 cc. distillation flask. 25 cc. of the distillate is redistilled. Make alkaline with 1:2 NaOH solution and distill over about 16 cc. 3-5 cc. of the latter is taken for colorimetric estimation of methyl alcohol, and the methyl number calculated.

Acetylation Method

SCHWALBE-GRIMM, 1921

During acetylation cellulose goes into solution while the incrustants remain undissolved. The reaction mixture is centrifuged in a graduated cylinder and volume of bottom settlings give a measure of the acetylation number.

Lit: Zellstoff u. Papier, No. 2, p. 51 (1921)

One gram air-dry pulp plus 5 grams acetic anhydride plus 5 grams glacial acetic acid plus 0.15 grams sulphuric acid (Sp. G. 1.84) are mixed and stirred at intervals for 24 hours. Add 15 cc. of the acetylation acid mixture and transfer the entire mixture to a graduated tube and centrifuge for 25 minutes. The volume of the lower layer is read and the acetylation number calculated.

Oxidation Methods

The so-called incrustants in pulp are readily susceptible toward oxidation. By estimating the amount of oxidizing agent reacting with pulp a relative measure of its bleachability is obtained. Methods have been developed using as oxidizing agents calcium hypochlorite, nitric acid, potassium permanganate, bromine and chlorine.

SIEBER'S METHOD, 1920

Lit: Schwalbe-Sieber, p. 272

5.0 grams oven dry pulp, or 21 grams pressed by hand, is dispersed in 150 cc distilled water in a 750 cc flask, and held at 20 deg. C. for ½ hour in a water bath. 100 cc. distilled water, containing calcium hypochlorite (alkalinity equivalent to 10 cc N/10 NaOH per 100 cc. solution) corresponding to 6 per cent chlorine on the basis of the pulp is added. Hold at 20 deg. C. for 1 hour, filter and titrate the excess chlorine with N/10 arsenous acid. Grams chlorine per 100 grams pulp is called the chlorine requirement value.

Remarks: Sieber has prepared graphs showing the relation of chlorine requirement value, lignin content, and bleachability to each other (Schwalbe-Sieber, p. 361). A. Ehrenfried (Papier fabrikant, p. 130, 1927) determines the excess of chlorine as follows: 50 cc. hypochlorite solution is treated with 20 cc N/10 arsenous acid and 2 or 3 drops methylorange and 10-15 cc. conc. HCl are added. Titrate with N/10 potassium bromate to the disappearance of the rose color.

RICHTER'S METHOD, 1912

Lit: Wochenblatt DC, 1631 (1912) Schwalbe-Sieber p. 167.

Richter has revised Hempel-Seidel's method for lignin determination: 10 grams pulp and 100 cc. 13 per cent nitric acid are heated to 100 deg. C. within 15 minutes and held at this temperature for one (1) hour. The nitrogen pentoxide which is formed is converted to nitric acid which is determined with N/100 KoH; the nitrogen trioxide is titrated with N/100 KMnO4.

Remarks: The pulp must be extracted with ether-alcohol and also water because extractives are also capable of reacting to form nitrogen oxides.

B. JOHNSEN AND J. L. PARSON'S METHOD, 1922

Lit: Zellstoff u. Papier, p. 258 (1922)

10 grams dry pulp and 225 cc. distilled water is held at 25 deg. C. on a water bath in a 500 cc flask. Add 25 cc N/1 KMnO4 and agitate from time to time for 1 hour. Filter off 100 cc. of the solution and transfer 10 cc to an Erlenmeyer flask containing 10 cc N/10 oxalic acid and about 100 cc water acidified with H_2SO_4. The number cc. required equals the permanganate number (P).

Remarks: For bleaching, the amount of chlorine in % = (0.415 + P x 0.025) P.

H. ROSCHIER'S METHOD, 1922

Lit: Zllstoff u. Papier, No. 8 (1922). Paper Trade Journal 76,99 (Tech. Sect. 1923).

The time is noted for 2 grams air-dry pulp to decolorize 80 cc. N/100 $KMnO_4$ after addition of 1.6 cc N/1 H_2SO^4. The author proposes the following classification for sulphite pulps:

	Decolorizing time at 20 deg. C.
Easy bleaching	70 sec.
Hard bleaching	50–70 sec.
Medium hard bleaching	35–50 sec.
Ordinarily hard bleaching	25–35 sec.
Very hard bleaching	25 sec.

Remarks: For strong pulps N/50 $KMnO_4$ is recommended. Tested on sulphite only.

A. M. CADIGAN'S METHOD, 1924

Lit: Paper Trade Journal (T.S.) 78,139 (1924) T. A. P. P. I. Papers p. 13, (1924).

5 grams pressed pulp (2 grams over dry) is treated in a 600 cc $KMnO_4$ solution (0.474 $KMnO_4$ 20 cc N/1H_2SO_4 per liter; approximately N/67). Decolorizing time for bleachable pulps is 35-120 seconds.

Remarks: Samples of definite volume may be taken at pulp thickeners and water removed by hand.

Cameron and Phelps (Pulp and Paper Magazine Sept. 30, 1926) use 3 grams air-dry pulp and 75 cc $KMnO_4$ (approximately N/67) and propose the following classification:

Pulp	Seconds
Raw	5–10
Hard	10–20
Medium hard	20–30
Ordinarily hard	30.40
Soft	40–60
Very soft	60

C. B. BJORKMAN'S METHOD, 1927

Lit: Pappers-och Trävarutidskrift for Finland, No. 2 (1927). Wochenblatt No. 11, (1927).

5 grams pressed pulp (2 grams oven dry) is trated in a 600 cc beaker with 150 cc N/1 sulphuric acid at 25 deg. c. After exactly 30 seconds add 100 cc standard ferrous sulphate solution to reduce the unconsumed permanganate, and 42 cc water, shake well for 10 seconds, filter off 100 cc and titrate with N/50 permanganate. The permangate consumed = 150 - (100 - 3a), where a = cc. permanganate used in titration.

Remarks: The procedure requires only 2-3 minutes.

A. TINGLE'S METHOD, (1922).

Lit: Zellstoff u. papier, p. 103 (1922). Ind. and Eng. Chem. p. 40 (1922).

0.6 - 0.75 grams oven dry pulp is trated in a 200 cc flask with 30 cc of an acid mixture (450 cc hydrochloric, sp. g. 1.19 and 50 cc. sulphuric, sp. g. 1.84). When solution is complete add 20 or 25 cc of an alkaline bromine solution, previously prepared according to specified directions, and allow the mixture to stand 30 minutes, shaking carefully from time to time. The reaction is stopped by the addition of 2 grams KI in 25 cc. water. Dilute with water and titrate with N/10 thiosulphate.

Remarks: Bromine no. = grams pulp which react with 1 cc N/10 bromine solution. Chlorine factor = the amount of chlorine equivalent to the bromine reacting with 100 grams pulp in 30 minutes. The amount of chlorine required for mill bleaching is obtained by multiplying the chlorine factor by a constant which may be different at different mills. T. M. Andrews and M. W. Bray have examined the method (Inl. & Eng. Chem., p. 934, 1923) and found that it is not suitable for sulphate pulp but works well on sulphite. Some modifications are recommended.

WAENTIG AND KERENYIS METHOD, 1919

Lit: Zellstoffchem. Abhandlungen 1,65 (1920)

Papier fabrikant, p. 920 (1920). Schwalbe-Sieber, p. 107.

A suitable amount of resin-free pulp is introduced into a special glass flask provided with calcium chloride. Chlorine gas is passed through the apparatus until constant weight is obtained, the excess chlorine is driven off and the increase in weight noted. The amount of chlorine gas as % of resin-free pulp is called the chlorine number.

R. B. ROE'S METHOD, 1924

Lit: Ind. and Eng. Chem. No. 8, p. 808 (1924)

4.5 grams moist sulphite pulp (2 grams oven-dry) is treated for 15 minutes with gaseous chlorine in a special apparatus. The absorbed chlorine on the dry pulp basis is called the chlorine number. The chlorine number multiplied by an experimentally determined factor (5, according to the author) gives the amount of calcium hypochlorite required for bleaching the pulp.

Remarks: Tested on sulphite only. Time for a determination 20-25 minutes. No more difficult to operate than Orsat apparatus. Method somewhat revised and tested by Genberg and Johnston (Paper Trade Journal, p. 265, T. S.

Absorption Methods

HERZOG, 1908

The incrustants in the pulp absorb copper sulphate to a greater extent than does the cellulose.

Lit: Beitschrift f. d. ges Textilindustri, 2,437 (1908) Papier fabricant, No. 15, 302 (1919).

Pulp is allowed to absorb copper sulphate and the "copper sulphate number" calculated. High values indicate high lignin content in the pulp, according to Herzog.

Remarks: Bernheimer (Beitrage z. Kenntn. d. Zellst. Kochverf u. System Mitschenlich, Karlsruhe, 1913) has used the method but found the results to be unreliable.

Staining Methods

E. ASKER, 1918

Lit: Papierfabrikant, p. 134 (1918); p. 951 (1919).

The pulp sample is stained with a solution of malachite green of definite strength and the color of the fibers are compared with graded standards under the microscope. In this way easy bleaching pulp is graded from 1 to 5 and strong pulp from 8 to 12.

United States Testing Co. Joins TAPPI

The United States Testing Company of 316 Hudson street, New York has been gaining in prestige greatly in the past few years, particularly because of the very generous service it has been giving to the pulp and paper industry. The company has been cooperating closely with the Pulp Testing Committee of the Technical Association of the Pulp and Paper Industry in the committee's endeavor to arrive at a method of evaluating wood pulp for strength and other properties.

The cooperative work has been carried on under the direction of Warren F. Moore of the United States Testing Company, who is a member of the Pulp Testing Committee of TAPPI. Among Mr. Moore's recent contributions to the pulp testing literature is his "Bibliography of Wood Pulp Strength Testing," which appeared in the PAPER TRADE JOURNAL of September 19, 1929, and his joint paper with W. R. Willets entitled, "The Evaluation of European Pulps," which was presented at the Erie, Pa. meeting of the Technical Association. At the recent annual meeting of the association in New York he was again joint author with Mr. Willets in the presentation of two papers dealing with pulp evaluation and having particular reference to the standard testing procedure recommended by the pulp testing committee. Mr. Moore's work has done much to speed up definite action relative to the association's program of work.

The United States Testing Company, Inc. began its pulp and paper testing work in 1921. This was an outgrowth of its well established testing work in the textile industry. The company is the official testing house and technical advisor of the Silk Association of America. The requirements for testing paper are similar to those for textiles. The instruments used in each industry are much alike. Insofar as moisture tests alone are concerned, the U. S. Testing Company makes more determinations annually than all of the other commercial laboratories combined.

For determining the moisture content of wood pulp the company uses a gas heated, forced draft oven which requires from three to four hours to dry the pulp to an absolute dry weight. The laboratory is well equipped to make tests for the following: Physical tests for pulp including unbeaten strength, beaten strength (strength at end of any specified beating period), beating test (freeness, Mullen and tear at 20 or 30 minute intervals to maximum strength), dirt count (per hundred square inches).

Chemical tests on pulp include alpha cellulose determinations, pitch content, bleachability, detection of free acid or alkali, moisture content, etc. All physical tests are made under controlled standard temperature and atmospheric conditions.

The United States Testing Company has developed an enviable reputation as weighers, samplers and testers of large shipments of wood pulp received in carload or shipload lots. The company has been officially recognized and approved by the Joint Committee on Approved Pulp Testing Chemists representing the Technical Association of the Pulp and Paper Industry, the American Paper and Pulp Association and the Association of Wood Pulp Importers.

Paper tests made include the microscopical examination to estimate fiber composition, physical tests such as tensile (Schopper), folding endurance (Schopper), bursting strength (Mullen), ream weight, thickness, absorption, light exposure (Fade-Ometer-carbon arc exposure), and chemical analyses for ash, rosin, filler, coating paraffin, fat, glue, starch, free acid or alkali chlorine moisture and anti-tarnish properties.

The company maintains a very large chemical laboratory which is equipped to test all products which are identified with the paper industry such as water, rosins, soaps, glues, etc. Branch offices are maintained at Chicago, Hoboken, New Bedford, Paterson and Philadelphia. Each of these branches are equipped to make moisture tests on wood pulp. All quality and chemical tests are, however, conducted exclusively at the New York laboratory on Hudson street. In addition to its commercial testing work the company carries on pulp and paper mill investigations and acts as consultants in its field of activity.

The United States Testing Company will be represented in the Technical Association by W. F. Moore.

Importance of Securing Patent Protection[1]

The following extract from the Industrial Bulletin is quoted with approval, "The benefits of research are often allowed to lapse through failure of the inventor to secure proper patent protection. This failure may be due to indifference toward obtaining such protection; to ignorance as to what constitutes patentable invention; or to incorrect procedure in preparing and drawing up the patent application and prosecuting its passage through the Patent Office."

"No company which carries on research or engineering development should be indifferent to patent protection. Such a company may maintain that it develops nothing of a patentable nature, but it would do well to assure itself that such is the case. Otherwise it may find itself faced with, and perhaps defenceless against, powerful competition from others who have made similar discoveries at a later date, or who have found out and appropriated the unprotected discoveries made within its own organization.

"Many people seem to believe that because a certain discovery is not basic or fundamental in its field, it is probably unpatentable. But the electric light and the telegraph and like fundamental inventions are not brought out every day; most of the patents which are being issued are for improvements upon basic inventions.

"Most improvements in machinery, processes or products which show invention are patentable. It is often difficult, however, to determine the presence or absence of patentable invention in any particular case. A definition of what constitutes patentable invention is difficult to formulate and often even more difficult to apply to any particular subject matter. (See 'What's Patentable in Papermaking'—PAPER TRADE JOURNAL of Oct. 3,1929). A good working rule when in doubt is that the inventor should apply for a patent, since the Patent Office and ultimately a court might hold the invention patentable even though the inventor himself had doubt of its patentability."

Especially is it advisable to file a patent application to cover an invention having immediate commercial value. An application often effectively prevents the grant of a patent for the same invention to another, at least until the Patent Office has satisfied itself by means of an interference proceeding that the other applicant is really the first inventor. For this reason many inventors before commercially introducing a new device, file a patent application to make certain that no patent will be issued to another. This precaution will not necessarily prevent litigation, but it oftimes prevents an inventor who has devoted much of his time, effort and money in introducing a new invention from being caught unawares by a competitor.

If the inventor succeeds in securing a valid patent of sufficient scope he may keep his competitor out of the forbidden field for the period of the patent, which is usually sufficient to enable the inventor to build up a valuable business and good will. Often the patentee is willing to license his competitors to use the invention under certain terms and restrictions. In such case he may legally fix the royalty which he shall exact from his licensee-competitor and may even grant the license upon the condition that the licensee execute to him a license to use the competitor's patented invention. However, it must be remembered that the patentees may not, when to a large degree, they dominate the trade, enter into an agreement for pooling their royalties and thereby increase the tribute exacted from the public.

It often happens that an inventor is unwilling to exclude the public from availing itself freely of his discovery. In this case it is advisable to secure a patent and dedicate it to the public, to prevent the grant of a patent to a later less altruistic inventor. The government to encourage this course of action waives all Patent Office fees.

[1] This is one of a series of special reports of the Patent's Committees of the Technical Association of the Pulp and Paper Industry. Others have appeared in this publication during the past few months.

TAPPI Notes

The second conference of technical experts in the printing industry will be held at the Government Printing Office on March 16 and 17. Members of TAPPI are invited to attend.

P. F. Wehmer of the Electrical Testing Laboratory and E. A. Bergholtz of the American Telephone and Telegraph Company were delegates of the Technical Association to the preliminary conference of the inter-society committee on color definitions held recently at the Museum of Science and Industry in New York.

The Allen-Sherman-Hoff Company, a company member of TAPPI has received the contract for the ash handling equipment to be installed in the new boiler plant of the Columbian Paper Company at Buena Vista, Va.

G. D. Jenssen Company have opened a new office in the Chrysler Building, 405 Lexington Avenue, New York.

Thomas A. Cape, formerly superintendent at the Champion Coated Paper Company passed away recently at Etters, Pa.

Donald I. Gross has resigned as chemist at the Industrial Rayon Company at Covington, Va. and may be reached at the Bradford Court Apartments Institution Avenue, Newton Center, Mass.

Charles A. Blodgett who has been bleach plant superintendent and technical director of the Eastern Manufacturing Company since 1916, has resigned. Mr. Blodgett's plans for the future are indefinite. He may be reached at South Brewer, Maine.

James Coghill has been appointed official representative in TAPPI of the Noble & Wood Machine Company, to replace H. N. Weir.

J. H. Wallace, president and general manager of J. H. Wallace & Co., has joined the organization of the Black-Clawson Company at Hamilton, Ohio.

John D. Kue, who has been with the News Print Service Bureau for the past year has taken a position with the Hooker Electrochemical Company at Niagara Falls, N. Y.

L. H. Larson has been designated official representative in TAPPI of the R. T. Vanderbilt Company, a company member.

Carlo Moriondi, a consulting technician of Milan and member of TAPPI has recently passed away from an attack of pulmonitis, in Milan, Italy. Dr. Moriondi was an expert in the subject of rayon and of high alpha wood pulp and has been a frequent visitor to the United States.

Makes Aerial Tour of West Coast

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., March 7, 1931.—W. H. Lee, president of the Lockport Felt Company, Newfane, New York, accompanied by Mrs. Lee and their 13-year old son, is at present making an aerial tour of the west coast, accompanied by Alan C. Dunham, Pacific Coast manager of the company who went to Los Angeles to greet the party upon their arrival. Mr. Dunham's headquarters are in Portland.

Mr. Lee will visit all the principal cities and industrial centers in his Lockheed-Vega seven-passenger plane which left New York February 24 and arrived in California two days later.

PICTURE TAKEN AT THE ANNUAL LUNCHEON OF THE TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, THURSDAY, FEBRUARY 19, 1931, HOTEL PENNSYLVANIA, N. Y.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

For photostatic copies of articles appearing in the Abstracts Section, address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B Streets, Washington, D. C. The charge for this service is as follows: 9 x 11 inches, 18 cents each; 18 x 11 inches, 35 cents each; 22 x 18 inches, 70 cents each; minimum charge, 50 cents. Copies of United States patents may be obtained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Pulp Treatment

Method of Conserving the Heat and Pulp from Pulp-Drying Machines. Sigurd Norman. U. S. pat. 1,766,082, June 24, 1930. —The hot air from the pulp drier is passed through a condensing chamber in which water jets are released progressively in consecutive compartments of the condensing chamber. The pulp particles entrained by the hot air are thus retained and the heat in the air is absorbed by the water and used to heat up the pulp delivered to the drying machine. The advantages claimed are: healthier and more comfortable working conditions in the pulp-drying room, saving in pulp through the return to the system of the fine fibers entrained by the air at the driers, and more rapid drying owing to the heating of the pulp. —A.P.-C.

Method of and Apparatus for Drying Pulp. Francis G. Rawling assignor to The Mead Pulp and Paper Company. U. S. pat. 1,766,944, June 24, 1930.—Discoloration of pulp, particularly bleached alkaline-process pulp, during drying is due mainly to alkalinity of the stock and can be prevented by making the pulp slightly acid, corresponding to a pH valve of 5.0 to 7.0. According to the invention this is effected by spraying the web (preferably when it is at a consistency of about 10%) with a very dilute solution of an acid or of an acid-reacting salt such as sodium bisulphate (nitre cake), alkali metal bisulphites, dihydrogen phosphates, hydrogen oxalates, hydrogen citrates, hydrogen tartarates, aluminum sulphate or chloride, etc. As an example of actual operating conditions, with a web of 150 inches wide running at 150 ft. per min., satisfactory results have been obtained by adding from 2 up to 50 lbs. of nitre cake per hour, depending on the alkalinity of the stock. —A.P.-C.

Bleaching

Refining Alkaline Pulps for the Production of High-Alpha Fiber. George A. Richter assignor to Brown Company. U. S. pat. 1,773,320, Aug. 19, 1930.—Chemical wood pulp is treated in a liquor containing both an oxidizing agent such as calcium hypochlorite and an excess of an alkaline compound such as caustic soda to effect removal of a large proportion of the non alphacellulose constitutents present in the pulp.—A.P.-C.

Bleaching Wood Pulp. John D. Rue assignor to The Champion Fiber Company. U. S. pat. 1,771,064, July 22, 1930.—Partially bleached and washed pulp is treated with a caustic alkali solution to produce a suspension containing caustic alkali solution of 5 to 12 per cent strength and a pulp consistency of about 5 to 10 per cent; the treatment is continued for about 10 min. to about 6 hrs., and the pulp is separated, washed, further bleached and washed again.—A.P.-C.

Bleaching Rag Pulp. Marie Bourrand and Desire G. Jacqueline. Fr. pat. 681,174, July 10, 1929.—Colored rags are bleached by a bath of sodium sulphite followed by a bath of potassium permanganate and steeping in sodium bisulphite solution.—A.P.-C.

Pulp Bleaching Process. The Mead Pulp and Paper Co. Fr. pats. 681,218 and 681,219, Sept. 2, 1929.—*No. 681,218*—The pulp is treated with insufficient chlorinating agent for a limited time and at a relatively low temperature, washed, thickened and then energetically chlorinated. No. 681,219 describes an apparatus for carrying out the process by the use of chlorine gas.—A.P.-C.

Method of and Apparatus for Bleaching Paper Pulp. Robert B. Wolf and Raymond P. Hill. U. S. pat. 1,753,228 (April 8, 1930).—The principle of the process consists in passing the stock continuously through the bleacher at high consistency (from 10 per cent to 30 per cent, or even higher), and alternately advancing the pulp as a quiescent body and agitating it energetically to effect kneading of the fibers and the intimate mixing of the bleaching reagent with the pulp. The bleaching liquor may be added all at one time at the inlet of the bleacher or at various points, preferably where the pulp is being agitated; in either case, addition of the bleach is continuous. If desired, air may be blown into pulp at the point where it is being agitated in order to carry away the gaseous reaction products and also to prevent undue increase in the temperature of the stock (above 90 deg. F.). Bleaching may be carried out either completely or only partially in this way, and in the latter case it is finished in an ordinary type of either high-or low-density bleacher. The apparatus consists of a tank divided by walls into compartments. The pulp is conveyed through each compartments. The pulp is conveyed through each compartment practically as a solid quiescent mass by means of a pair of parallel screw conveyors, and is transferred to the succeeding compartment by means of a transverse worm.—A.P.-C.

Bleaching Wood Pulp. Linn Bradley and Edward P. McKeefe assignors to Bradley-McKeefe Corp. U. S. pats. 1,768,-819 to 1,768,823, July 1, 1930.—*No. 1, 768,819.*—A strong solution of an oxidized manganese compound such as sodium or calcium permanganate is added in regulated quantities to the material and the latter is subjected to the action of the solution in the presence of an acid such as hydrochloric or sulphuric and is subsequently treated (suitably with sulphur dioxide solution) to dissolve out insoluble manganese compounds. *No. 1,768,820* provides a process in which chemical wood pulp is subjected to a preliminary treatment with an acid chlorine-containing bleach liquor, and subsequently without intermediate high-temperature cooking of the pulp, the bleaching operation is completed with an oxidizing bleaching liquor. *No. 1,768,821* covers a method of bleaching comprising the following steps: (a) mixing the unbleached pulp with bleach liquor containing a hypochlorite of an alkali-forming metal. (b) treating the mixture to effect reaction of resulting bleaching reagent with a portion of the non-cellulosic organic material of the pulp; (c) removing residual liquor and associated soluble reaction products from the partially bleached fibrous material; and (d) further treating the material with an oxidizing bleaching agent. In the first stage of the process less bleaching agent is used than would be required to convert the unbleached pulp into high-white bleached chemical pulp in a single-stage bleaching treatment. *No. 1,768,822* specifies a process in which

the material is treated with an oxidizing bleaching liquor insufficient for complete bleaching, this liquor is allowed to remain in contact with the material until its bleaching action is substantially exhausted, spent liquor and soluble compounds are then removed and bleaching is completed by a further addition of oxidizing bleaching liquor. *No. 1,768,823* specifies treating an incompletely bleached aqueous pulp with a liquor containing caustic soda and an oxidizing bleaching agent until the fibers have been substantially freed from colored organic matter, and then separating the fibers and liquor.—A.P.-C.

Bleaching of Maritime Pine Pulp. J. Louis Lussaud. Paper 33, 389-392 (April), 519-530 (May 1930); Papeterie 52, 461-466 (April 25), 597-598 (May 25), 642-649 (June 10, 1930).—Using 30 per cent of caustic soda on the weight of dry wood, the consumption of caustic soda decreased and the yield of unbleached pulp increased with decrease in the concentration of the liquor. Using the same weight of wood and the same volume of liquor, the consumption of soda increased and the yield of unbleached pulp decreased with increase in the concentration of the liquor. Comparison of bleaching at 20 deg. C. and at 40 deg. C. showed that the temperature had practically no effect on the color obtained with a given proportion of bleach; but the latter was exhausted much more rapidly at 40 deg. C. than at 20 deg. C. Moreover, in bleaching at 20 deg. C., the rate of exhaustion of the bleach slowed down considerably after consumption of about 30 per cent of the amount required for complete bleaching. Increasing the amount of soda used for cooking reduced both the amount of bleach required and the loss on bleaching, so that the yield of bleached pulp was practically unaffected by variations in the amount of soda used. With the same total alkalinity, the sulphate process gave a higher yield of more easily bleached pulp than the soda process.—A.P.-C.

Multiple Stage Bleaching Process. Emil Heuser. Pulp Paper Mag. Can. 30, 101-104, 116 (July 24, 1930); Paper Trade J. No. 7, 55-58 (August 14, 1930).—In two-stage bleaching there is an optimum amount of bleach which should be used in the first stage in order to obtain maximum bleach economy. This amount varies with different pulps and should be determined by means of laboratory bleaching experiments carried out at the same consistencies as are used in the commercial bleaching. It corresponds to the amount giving maximum conversion of the residual incrusting material in the unbleached pulp into dark-colored, soluble compounds and minimum oxidation of these soluble compounds into light-colored compounds. This optimum amount can be determined fairly accurately by treating the pulp with different amounts of bleach and noting the one which gives the darkest-colored liquor. Contrary to Hatch Paper Trade J. 89, No. 18, 135-139 (1929); Pulp Paper Mag. Can. 28, 663,666, 698, 700 (1929), the author considers that the most scientific and economical method is to use high-density bleaching for the first stage and low-density for the second. Comparative tests on the same pulps showed that using the optimum amount of bleach (which is considerably greater than the 30 per cent recommended by Hatch) and high consistency for the first stage gave higher bleach economy, higher tearing and folding resistances, higher freeness test, higher alpha-cellulose content and lower copper number than bleaching under the conditions recommended by Hatch.—A.P.-C.

Sizing

Williams' Sizing Process. F. M. Williams. Paper Mill 53, No. 44, 16-17 (Nov. 1, 1930).—The Williams process of making rosin size consists essentially in crushing the rosin, grinding it to a soft paste with water in a pebble mill, and then adding the other constituents (alkali and protective colloids if desired) continuing the grinding process until the reaction or mixing is complete. The size is then diluted and filtered, and is ready for use or storing.—A.P.-C.

Beater Sizing. G. H. Lafontaine. Paper Mill 53, No. 19, 10 20-24 (May 10, 1930); World's Paper Trade Rev. 93, 2267-2276 (June 20, 1930).—A discussion of the principal factors in the production of optimum results from a given size on a given grade of paper, which are: well prepared size adapted to the particular mill conditions; thorough dispersion of the size particles in the stock; good retention of the precipitated size by the fibers; proper fluxing of the rosin or modified rosin through the sheet. The advantages of rosin-wax size over all rosin size, owing to its greater covering power and lower fluxing temperature, are brought out.—A.P.-C.

Delthirna Sizing Process. R. de Saint Hilaire. Paper Trade J. 91, No. 3, 55-56 (July 17, 1930).—A brief description of the process for which the following advantages are claimed: saving of the rosin, of steam and of size, suppression of rosin stains, possibility of using any grade of rosin, no increase in the amount of alum required.—A.P.-C.

Sulphate of Alumina. C. D. McCollister. Paper Mill 53, No. 41, 20-21 (Oct. 11, 1930).—A brief outline of its manufacture and uses.—A.P.-C.

Use of Wax in Sizing Paper. Ralph W. Kumler. Paper Mill 53, No. 23, 14, 16, 20 (June 7, 1930); World's Paper Trade Rev. 94, 335-340 (July 25, 1930).—A discussion of the merits and method of using rosin-wax size, and of its effects on the strength, bending qualities, finish, color, curling, permanence and water resistance of paper.—A.P.-C.

Rosin Sizing of Paper. S. R. H. Edge. Proc. Tech. Sect. Papermakers' Assoc. 10, 289-294 (1930).—Further experimental evidence is given in support of the contention that aluminum sulphate is essential to sizing. Unbeaten pulps can be sized with rosin, "self-sizing" increasing with degree of beating. Acid aluminum resinates have been prepared and found to have considerable sizing action when added to pulp. 2 per cent added to moderately beaten pulp of pH 5.0 has, in the presence of a trace of free alum, the effect of hard sizing.—A.P.-C.

Rosin Sizing Literature Review. Marion B. Swift. Paper Trade J. 90, No. 26, 54-55 (June 26, 1930); Tech. Assn. Papers Series 13, No. 1,232-233 (May 1930).—A review of recently published articles on sizing, more particularly of those presenting new theories on the mechanism of sizing.—A.P.-C.

Dyes and Dyeing

Coloring of Paper. N. L. Mathews. World's Paper Trade Rev. 93, 1322-1326, 1378, 1380 (April 11, 1930); Paper Maker & Brit. Paper Trade J. International No. 89-93 (1930).—A brief general discussion of the use of the different classes of dyes in paper making.—A.P.-C.

Rotospray Clay and Color Sifter. Anon. World's Paper Trade Rev. 94, 322, 324 (July 25, 1930).—A brief explanation of the operation of the device, which is a rotary spray sifter designed for sifting or straining all types of fluids, including color solutions or suspensions and clay suspensions.—A.P.-C.

Apparatus for Coloring Paper Stock. Michael W. Ranke. U. S. pat. 1,773,435 (Aug. 19, 1930).—The head box is divided by partitions into receiving, overflow and mixing compartments. The partition separating the receiving and overflow compartments has an opening to maintain a predetermined level of stock in the receiving compartment; the partition between the receiving and mixing compartment has a gate-controlled opening for regulating the delivery of stock from the receiving to the mixing compartments. Distributing tanks are placed intermediate the color reservoirs and the head box and at a higher level than the head box so as to supply the color to the mixing chamber by gravity. The distributing tanks are connected to the mixing chamber by means of valved pipes. The coloring matter is pumped in regulated amounts from the reservoirs to the distributing tanks, and the latter are provided with overflow pipes to return the excess color back to the reservoirs.—A.P.-C.

Coating Materials

Recent Improvements in the Methods of Winning China Clay. Anon. Paper Making Special No. 76-83 (1930).—A brief description contrasting the methods employed in the immediate past and at the present time.—A.P.-C.

Treating Clay to Remove Grit for Use in Paper Manufacture. Wm. H. Alton, assignor to R. T. Vanderbilt Co. U. S. pats. 1,771,477 to 1,771,479 (July 29, 1930).—*No. 1,771,477*—Clay containing grit of a "substantially imperceptible fineness" is subjected to a preliminary drying and rough disintegration, then to a combined air separation and detrition to separate the clay particles from the grit. *No. 1,771,478* relates to separation of clay from grit by crushing, drying and air separation. *No. 1,771,479* also relates to details of a process of separation of Clay from associated grit.—A.P.-C.

Grit in China Clay. James Strachan. World's Paper Trade Rev. 93, 482-486 (Feb. 7, 1930).—The Schöne type of apparatus is out of date in the modern physical laboratory for the fractionation of clays and fine sediments; for rapid work the pipette method and the hydrostatic method are now used, while for more elaborate work the Odén-Keen automatic balance is used, which records a graph of particle size during sedimentation. There are two distinct processes in the physical examination of china clay: (a) separation of true grit, (b) fractional analysis of the true clay for particle size. The author considers that a sedimentation method is best suited for both processes, particularly since it has been refined to such a point that rapid and accurate particle-size graphs are readily obtained. He has devised an apparatus (to be described later) combining the merits of Osborne's beaker method (1888) and of Atterberg's modification of Appiani's silt cylinder (1894), without their faults, and which presents the following features: (1) It is possible to work with large samples (5 to 10 g.). (2) The size of the particle is controlled absolutely by the time of sedimentation, concentration of suspension, temperature, and pH value of the water. (3) The water required is reduced to a minimum and may be distilled water if necessary. (4) The time required for removal of grit over 0.05 mm. is 1 to 1.5 hours from weighing of sample to weighing of dry grit. (5) The separation of the sediment from the suspension occupies a fraction of a second only, dispensing entirely with pouring off or drawing through taps. (6) Owing to the small volume of water required and the short time occupied, the conditions are easily controlled. (7) The apparatus requires careful handling, but the method is so simple that, if the times of sedimentation are standardized for a given size of particle, a boy or routine worker may become expert in its use after a single demonstration. Grit estimation in clay should be accompanied by a proper mineralogical analysis of the sediment, or at least a differentiation between kaolinite, mica and quartz sand, which can be done approximately by chemical analysis of the sediment.—A.P.-C.

Pulp Testing

Isolation of Cellulose by Chlorination Method. Anon. Paper Trade J. 91, No. 11, 81-82 (Sept. 11, 1930).—A description of the technic of the methods proposed for tentative adoption by T.A.P.P.I. for the determination of cellulose by chlorination and for the determination of the chlorine consumption of pulps.—A.P.-C.

Pulp. James Strachan. Paper Making Special No., 66-75 (1930).—A brief discussion of the properties and uses of various grades of pulp.—A.P.-C.

Evaluation of European Pulps. Preliminary Report. Warren F. Moore, and William R. Willets, Paper Trade J. 91, No. 11, 78-81 (Sept. 11, 1930).—Strength data are given and discussed for 21 well known brands of European pulps comprising one bleached sulphite, nine unbleached sulphite and eleven krafts. The methods of analysis used are briefly described. The 1½ lb. controlled-bedplate was found relatively unsatisfactory to obtain an accurate and complete beating curve because, after 6 or 7 samples have been removed, circulation ceases owing to the greatly lessened volume of stock in the beater and the increased hydration of the pulp.—A.P.-C.

Modification of the Method for the Differentiation of Bleached and Unbleached Fibers. Frank F. Filz. Paper Trade J. 91, No. 16, 49 (Oct. 16, 1930).—The technic of the Bright staining method has been modified by staining at room temperature, and by using the following stable solution as solution C: shake 0.5 g. benzopurpurine 43 crude with 100 cc. of ethyl alcohol, let the insoluble matter settle, and decant. Two years' experience with the method showed it to be sufficiently accurate for all ordinary purposes, while the time required for a determination is only about 10 mins. Using this technic, unbleached fibers are stained the usual blue color, and bleached fibers are stained a delicate pink instead of a bright red.—A.P.-C.

More About Beater Value of Pulps. O. P. Gephart. Paper Trade J. 91, No. 1, 52-53 (July 3, 1930); Techn. Assn. Papers Series 13, No. 1, 145-146 (May 1930).—Taking The Mullen and tear as two of the most important tests from the standpoint of the strength of pulp, the author discusses the importance of determining both the initial and the beaten strength of pulp to properly evaluate its strength characteristics (more particularly its "beater value," as defined in the tentative standard method of the British Technical Section), showing that pulps, which might be considered equal if judged by the initial strength only, may be shown by the beaten strength test, and found in practice, to be quite different in strength characteristics.—A.P.-C.

Measurement of Average Fiber Length. John B. Calkin. Paper Trade J. 91, No. 9, 44 (Aug. 28, 1930).—A detailed description of the technic of a method for measuring the average fiber length of pulp.—A.P.-C.

Sheet Making and Testing. James d'A Clark. Paper Mill 53, No. 36, 14, 16, 22, 24 (Sept. 6, 1930); Paper Trade J. 91, No. 12, 61-64 (Sept. 18, 1930).—A brief outline of the apparatus and methods adopted as official by the Paper Makers' Association of Great Britain for sheet making for both the beaten and initial strength test and for the determination of freeness of pulp contrasting them with the present tentative TAPPI and Canadian methods and other methods now in use on this continent.—A.P.-C.

Interconversion of Freeness Scales. D. S. Davis and L. E. Simerl. Paper Trade J. 91, No. 12, 58-60 (Sept. 18, 1930).—Curves and equations are given which represent interconversion of scales for the original Green, Canadian standard, Schopper-Riegler, Williams 50-50, Williams 1925 (Model B), Williams 1927 (Model B) and Williams precision freeness testers. While applicable only in an approximate manner where stock conditions differ from those mentioned in the paper, the charts and formulas may serve as a starting point in interpreting conversion data under other conditions.—A.P.-C.

Study of the Estimation of the Copper Number. Erik Hägglund and Jessie E. Minor. Pulp Paper Mag. Can. 30, 389-391 (Oct. 2, 1930).—After comparative studies of the Schwalbe-Hägglund, Koehler-Braidy and Bertrand methods, the following method has been developed claimed to be more simple and rapid and to give the true reducing value of the material: place 1 g. of air-dry cellulose, rasped and coarsely sieved, in a boiling copper solution made up of 20 cc. of solution I (62.5 g. of copper sulphate crystals per liter) and 20 cc. of solution II (200 g. Rochelle salt and 150 g. of copper sulphate per liter), boil exactly 3 min. in a porcelain dish (stirring is unnecessary), cool, filter through a Buchner funnel using an S & S No. 575 hardened filter, wash the residue with warm water till colorless, dissolve in ferric sulphate solution added in 10 cc. portions till a total of 30 to 40 cc. has been reached and titrate with decinormal potassium permanganate solution. Minor con-

siders that Hägglund's conclusion that the copper number obtained by the Schwalbe-Hägglund or Bertrand methods represents the true reducing power of the original material whereas the Braidy is not a true expression of the reducing power, is not warranted by the data submitted. In the Braidy method, a constant temperature the reaction rises steadily from 0 to a value that remains constant for at least several hours; the Schwalbe-Hägglund and Bertrand method gives curves which begin abruptly at various points and, so far as the data goes, shows no indication of any constant value for any length of time. Minor adopted the Braidy method because: it uses an alkali which does not cause further degradation of the cellulose, it avoids the use of tartrate solution with ferric alum, it gives results which are reasonably easily reproduced, it brings out fine distinctions which seem consistent with other considerations.—A.P.-C.

New Method for the Determination of the Copper Number of Cellulose Products. Henri Louis Barthélèmy. Russa 5, 1111-1117 (July 1930); Pulp Paper Mag. Can. 30, 421-423 (Oct. 9, 1930).—The chief factors affecting the accuracy of the results of copper number determinations are the time of boiling and the concentration of the alkaline solution. From a study of the influence of these factors, including the effect of atmospheric oxygen during the boiling, the following method was worked out, which is claimed to give duplicates agreeing to 0.02: place 2 g. of cellulose of known moisture content in an 800-cc. Kjedahl flash containing 250 cc. of distilled water and closed with a two-hole stopper carrying a reflux condenser and a connection to a nitrogen cylinder, pass a gentle current of nitrogen (passed over heated copper gauze to remove the last traces of oxygen), heat to boiling to expel occluded air, add 100 cc. of mixed Fehling solution (a) 138.6 g. of copper sulphate crystals dissolved to 2 l., (b) 692 g. of Rochell salt and 200 g. of sodium hydroxide dissolved to 2 l.), continue boiling exactly 15 minutes, place the flask 10 mins. in a current of cold water, filter with suction through a 75-cc. fritted glass filter of medium porosity, wash with distilled water till the filtrate is colorless, wash with 200 cc. of boiling 10 per cent solution of Rochelle salt (to remove adsorbed cupric salt) and then again with about 750 cc. of boiling distilled water, dissolve the cuprous oxide with 20 per cent nitric acid, and determine copper electrolytically with a rotating anode using 1 to 1.25 amperes under 2 to 2.5 volts, or by any other standard. —A.P.-C.

Drying Handmade Sheets. F. M. Williams. Paper Mill 53, No. 16, 6 (April 19, 1930).—In order to obtain reliable results, hand made test sheets should be dried as nearly as possible under the same conditions as paper on the paper machine. For this purpose the Williams Apparatus Co., Watertown, N. Y., has devized a sheet drier comprising an electrically heated polished copper drying surface of the same curvature as a 30-inch drier roll, on which the wet sheet is laid, after which it is covered with a drier canvas which is stretched over it and clamped under any desired tension.—A.P.-C.

Microscopical Examination of Pulps for Rosin. T. T. Potts. Proc. Tech. Sect. Paper Makers' Asso. 10, 339-340 (1930).—A modification of the Sudan III test is described. The pulp is stained in a C.2 per cent solution of Sudan III in 70 per cent alcohol for 1 hour, washed rapidly with 50 per cent alcohol, cleared with 50 per cent glycerin, and mounted in glycerin jelly. Rosin and fats are stained red, the fibers remaining colorless. Attention is drawn to the distribution of rosin in pulps.—A.P.-C.

Wood Pulp Testing: A Plea for Standardization. G. H. Gemmell, Prod. Tech. Sect. Papermakers' Assoc. 10, 381-286 (1930).—The necessity for the standardization of pulp-testing methods is urged. The fat and rosin content of various woods was investigated, and it is concluded that the fatty-alcoholic extract is responsible for most of the "pitch" troubles of the paper maker. The addition of paraffin (sp. gr. 0.8-0.85) to the pulp during bleaching is recommended.—A.P.-C.

Groundwood Stock Classification. J. Campbell. Paper Industry 12, 508-509 (June 1930), Paper Mill 53, No. 23, 4 (June 7, 1930); Paper Trade J. 91, No. 10, 68-69 (Sept. 4, 1930).—A method is proposed consisting in screening successively through a 0.007-inch plate and 10-, 20-, 30-, 50-, 90- and 200-mesh screens, the amount retained on each screen being dried and weighed. An apparatus for carrying out the test has been devized, consisting in a small flat screen so arranged that the screen part can be easily and rapidly removed, cleaned and changed. Comparative tests on groundwood pit stock and on stock screened at the mill showed that in the mill the stock retained on the 0.007-inch plate and generally all the stock retained on the 10-mesh screen are removed by screening, while most of the fibers in the mill white water passes through the 200-mesh screen. Microphotographs are given of the stock retained on the various screens. A.P.-C.

Rate of Flow Test for Evaluating Groundwood. L. A. Carpenter and E. R. Schafer. Paper Trade J. 91, No. 3, 57-60 (July 17, 1930); Technical Association Papers. Series 13, No. 1, 263-266 (May 1930).—The freeness test by measuring the rate of flow of water through a mat of pulp formed on a fine-meshed wire from an aqueous pulp suspension, first suggested by Campbell. U. S. pat. 1,627,000, Paper Trade J. 85, No. 16, 52 (Oct. 20, 1927) has been modified so as to measure the variation in the rate of flow with time. The apparatus devised is described. An algebraic equation has been worked out to express the rate of variation of flow, and the constants of this equation are defining characteristics of the pulp. It is believed that the application of the test will aid in obtaining a better evaluation of groundwood pulps and will result in the production of more acceptable grades.—A.P.-C.

Groundwood Pulp Evaluation by Means of Static Bending, Screen Analysis and Rate of Flow Tests. E. R. Schafer and L. A. Carpenter. Paper Trade J. 91, No. 3, 61-65 (July 17, 1930). Technical Association Papers Series 13, No. 1, 267-271 (May 1930).—The correlation of the static bending test, Paper Trade J. 89, No. 17, 50-52 (1929); Pulp Paper Mag. Can. 28, 667-671 (1929), the fractionation of pulps by means of screens, Paper Trade J. 90, No. 19, 57-61 (May 8, 1930), and the rate of flow test (preceding abstract), and their relations to fundamental physical properties of the pulp are discussed.—A.P.-C.

Wood Pulp Flour and Shives in Mechanical Wood Pulp. O. M. Halse, World's Paper Trade Rev. 93, 1113-1114 (March 28, 1930).—A brief discussion of the importance of proper methods for the determination of shives and of wood flour for the proper evaluation of groundwood. A simple test for shives consists in disintegrating 10 g. of pulp in 10 l. of water, pouring through a small flat screen with 0.20 mm. slots and simultaneously spraying it with a small spray until all the pulp which pass has been washed through; the shives are then washed into a small glass dish, dried and weighed. A pulp of good quality should generally contain not over 0.1 per cent shives. Cleanness can also be judged by examining a sheet made from the pulp after washing out the wood flour. Photographs of the pulp are valuable, as they furnish a permanent record, but their interpretation requires considerable experience; in order to get a picture of the quality of the fibers they should preferably be photographed after removal of the flour.—A.P.-C.

Paper Testing

Porosity of Paper. Giro Silvio. Paper 33, 843-855 (Aug. 1930).—An apparatus is described which permits of determining the impermeability (defined as the reciprocal of the porosity) of paper in C. G. S. units by measuring the time in seconds required for the passage of 100 cc. of air under known constant pressure through a sheet of known area (Preferably 50 sq. cm.). The relative impermability is defined as the per-

meability divided by the thickness of the sheet in cm. The effects of fiber dimensions, nature of the stock, degree of beating, rosin sizing, tub-sizing, loading, working of the stock on the paper machine, and calendering, on the porosity of the finished paper are discussed, and data obtained by means of the above apparatus are submitted in support of some of the contentions, more particularly as regards the effects of thickness, calendering and loading.—A.P.-C.

Contribution to the Study of Papers from the Standpoint of their use for Printing. Raymond Fournier. Papeterie 52, 386-394 (April 10, 1930).-A brief discussion of the properties of various grades of papers from the standpoint of their suitability for printing.—A.P.-C.

Matching Colors in the Laboratory. C. C. Schneder. Paper Trade J. 90, No. 14, 71-72 (April 3, 1930).—A brief outline of the information required in order to select a suitable dye for paper for a given purpose, of the equipment required for color matching for paper mill work, and of the manner of carrying out the test.—A.P.-C.

New Wrinkles in Paper Testing. E. Sutermeister and L. W. Porter. Paper Trade J. 90, No. 12,73-74 (March 20, 1930).—When the casein coating has been waterproofed with formaldehyde, it can readily be removed by immersing the paper for at least 2 hours at 40 deg. c. in a solution containing 1.5 to 2.0 g. of trypsin and 25 cc. of decinormal caustic soda per litre, and then brushing in the usual manner. Pepsin is not as effective as trypsin. The results are of the same order of accuracy of casein, treat the paper with formaldehyde gas in a closed jar over night, or until no test can be obtained by boiling the paper in water and adding Schmidt's reagent (acid ammonium molybdate), boil 0.5 to 1.0 g. of the formolized paper for 2 minutes in 15 to 20 cc. of hydrochloric acid (1:4), decant the solution, make sligthly alkaline to phenolpthalein, just neutralize with hydrochloric acid, filter and add Schmidt's reagent: glue gives a precipitate while casein and starch give none. The Schopper tensile tester has been adapted to measure the force with which fibers adhere to each other when stress is applied vertically to the surface of the paper, which test indicates the relative firmness or hardness of the paper. The holder for the paper sample consists of 2 brass blocks, 1 inch square and about 0.25 inch thick, in the center of one side of each of which is fastened a small eye-bolt enabling the blocks to be attached to hooks fastened in the jaws of the tester. Sodium silicate is brushed into one of the blocks, most of it is removed by pressing lightly on a piece of paper or pulp, and the silicated surfaced is immediately pressed on the sample; the other block is treated in the same way and pressed on the paper exactly opposite the first. The assembly is seasoned over night, and then suspended from the hooks and the force necessary to split the paper determined. Excess of silicate soaks into the paper and spoils the test. Time and conditions of seasoning the assembly samples must be uniform.—A.P.-C.

Tests Made on Old Papers. Anon. Paper Mill 53, No. 29, 14 (July 19, 1930).—Tests made on specimens of newspapers dating from 1830 to 1895 confirmed that the processing of fibers is a more important factor in their quality than is the source of the fibers. The permanence of the papers that were made from highly-refined fibers, whether from rags, straw, esparto or wood was good, but starting with the introduction of groundwood the papers were generally deteriorated, whether the groundwood was associated with highly-refined fibers or with only partially refined fibers.—A.P.-C.

Paper and Printing. E. O. Reed. Paper Mill 53, No. 24, 10, 12, 30. (June 14, 1930).—A brief discussion of paper finish, moisture content and relationship to printing inks.—A.P.-C.

Capacity and Transparency. William M. Nash. Paper Mill 53, No. 22, 14, 54-55 (May 31, 1930); World's Paper Trade Rev. 94, No. 149-150 (July 11, 1930).—A description of the K. and N. Opacity and Transparency Tester and of its merits, particularly when used in conjunction with the Drake Penetration Tester for determining the resistance of paper to penetration by printing ink.—A.P.-C.

Soda Soluble Test for Cotton Degradation. B. K. Steadman. Paper Trade J. 90, No. 24, 68 (June 12, 1930); Technical Association Papers. Series 13, No. 1, 248 (May 1930).—A brief discussion of the application of the soda-soluble test to the analysis of bond papers. When calculated to the moisture—ash-, glue- and rosin-free basis, the soda soluble is very nearly equal to the non-alpha-cellulose constituents. It is suggested that if a weaker alkali were used which did not disturb the sulphite fibers any more than the new rag fibers, the soda soluble might give all the information of the alpha content with much less work—A.P.-C.

Determination of pH Values and Total Acidty of Paper. B. L. Wemhoff. Paper Trade J. 91, No. 14, 59-60 (Oct. 2, 1930)—A progress report of the cooperative research on methods of determination of pH values and total acidity being conducted by the Bureau of Chemistry and Soils, and the Government Printing Office, Washington, D. C.—A.P.-C.

Determining pH Values and Total Acidity in Paper. B. L. Wemhoff. Paper Trade J. 90, No. 26, 52-54 (June 26, 1930); Technical Association Papers Series 13, No. 1, 230-232 (May 1930).—A description of the program of the collaborative investigation undertaken by the U. S. Bureau of Standards, the Bureau of Chemistry and Soils and the Government Printing Office, comprising a study of the different methods for the determination of pH values and total acidity in paper of the relationship between pH values and total acidity, a study of the extent to which it is possible to eliminate acidity during the process of paper manufacture, and the application of the results in working out specifications for paper and methods of paper testing. A preliminary report on the work already carried out is given.—A.P.-C.

Relationship of Impurities to Paper Permanence. W. E. Byron Baker. Paper Trade J. 91, No. 4, 51-52 (July 24, 1930); Technical Associa. Papers Series 13, No. 1,277-278 (May 1930); Paper Maker & Brit. Paper Trade J. 80, 253-255 (Sept. 1, 1930).—A discussion of the influence of cellulose degradation, acidity of inks and paper, oxidizing reactions, and the simultaneous action of iron and sulphur dioxide on the permanence of paper.—A.P.-C.

Variability in Results Met With in Paper Strength Testing. Cyril V. Oliver. World's Paper Trade Rev. 93, 660,662, 714 (Feb. 21) 754-758,796,798 (Feb. 28, 1930); Paper Maker & Brit. Paper Trade J. 79, 595-605 (June 2, 1930)—Results of a number of tensile, bursting and tearing tests on various grades of papers are given and discussed to bring out the necessity of a close study of the various factors involved, due either to the paper, the instrument or the personal element, in order to reduce to a minimum variation in the results obtained even by the same operator.—A.P.-C.

Paper Specifications. B. L. Wemhoff, Paper Mill 53, No. 26, 2, 10 (June 28, 1930).—A brief discussion of the possibility and importance of purchasing paper on technical specifications.—A.P.-C.

Correlation of Bursting Strength and Tensile Strength of Paper. James Strachan. World's Paper Trade Rev. 93, 1404-1412, 1522-1528, 1538, 1580-1588, 1690-1694, 1750, 1752 Apr. 18—May 9, 1930; Paper Maker & Brit. Paper Trade J. 79, 498-502, 512, 80, 38-43 May 1, (July 1, 1930).—Bergman's formula:

$$\frac{\text{Breaking length in meters}}{\sqrt{\text{Bursting surface}}} = 1{,}000,$$

has no theoretical basis and is wrong in practice. Carson's and Dalen's formulas, based on $T = \frac{Br}{2}$ (Carson) or $\frac{Br^2 \div h^2}{4h}$ (Dalen) are also wrong both in theory and practice. Stress is laid upon the calculation of a factor "v" called the factor of uniformity or index of homogeneity, which indicates the degree of variation of non-homo-

geneous paper from the condition of theoretical homogeneity: $v = Br/2T$, where r is the radius of the test-disc. This factor varies from 0.3 to 0.7, and is about 0.5 for normally strong papers. $v = 1$ for perfect homogeneity. v is shown from practical observations to comprise two elements of importance, namely, fiber length and cohesion of the fibers. The strength is proportional to the square of the fiber-length and to the cohesion of binding of the fibers (produced either by colloidal adhesion or gelatin sizing). $v = l + k$, in which $l = \sqrt{}$ (fiber-length in cm.) and k = factor of cohesion. $k = v - 1$, and $100k/v$ = percentage cohesion. The longer the fiber-length of a paper and the more the fibers are bound together by cohesion, the more "v" approaches to unity or condition of perfect homogeneity. The theory of the above equations is worked out showing how lack of homogeneous structure causes departure from the theoretical formula $T = Br/2$ by reason of the fact that the strains in the test-disk are both peripheral and radial and that the primary line of burst may be anything from the rather less than a diameter to less than the whole circumference. The methods of calculation indicated in the paper from observation of tensile-strength, bursting-strength and fiber-length give a means of investigating the degree of cohesion produced between the fibers by paper making operations as reflected by the bursting test. The bursting-strength test on papers is generally more useful than the tensile-strength test alone, as it comes nearer to actual conditions in practice, but a combination of both tests, with observation of the fiber length, confirms the author's repeated statement that the highest skill in paper making is found in the production of a sheet of paper with maximum fiber length combined with maximum felting of the fibers, or maximum degree of combination of the fibers with minimum destruction of fiber structure.—A.P.-C.

Breakdown of Impregnated Cable Paper. A. F. Walther and G. A. Dmitriev. Trans. Phys.-Tech. Lab., Leningrad No. 5, 48-51 (1928). Trans. State Phys.-Tech. Lab. (Moscow) No. 8 (1928). —The mechanism of the breakdown of insulating paper used in cable manufacture was investigated. Various patterns of cellulose paper were submitted to a test to determine the effect produced on their dielectric strength by such factors as the thickness of the insulating layer, the temperature, the character of the tension and the degree of moisture. The breakdown-tension value varies directly with the compactness of the paper. The breakdown gradient diminishes as the thickness of the insulating layer is increased. The effect of temperature on the breakdown tension was found to be negligible when the paper is well dried. When either continuous or impulse voltage is applied the tension values exceed those observed under alternating tension by approximately 250 per cent in either case. These results suggest that in the case under consideration the breakdown cannot be considered thermal in nature. If the insulating layer is moist, the dielectric strength is reduced considerably. In this case most of the relationships proved to be different; e.g. the temperature has considerable effect upon the breakdown tension. It is probable that with paper containing a certain percentage of moisture the breakdown is of a thermal nature.—A.P.-C.

Null-Point Method of Potentiometric Titration for Determining Acid or Alkali in Paper. Beverly L. Clarke and Leland A. Wooten. Ind. Eng. Chem. (Analyt. Edit.) 2, 385-387 (Oct. 15, 1930).—A method of electrometric titration is described which involves the use of inexpensive apparatus and which is marked by its simple and rapid manipulation. When applied to the determination of paper acidity, this method is independent of the presence of dyes and makes unnecessary the application of a correction. It is shown that the precision is 0.0002 milli-equivalent per gram. Experimental data are presented which indicate that the correction by the A. S. T. M. method for the titration of the acidity of condenser paper is invalid. The null-point method described is shown to be useful for the accurate titration of certain week acids and bases. This is effected by varying the conceitration of potassium chloride in the calomel half-cell.—A.P.-C.

Moisture-Proof Determination of Waxed Papers. Chas. Allen Thomas and Herman J. Reboulet. Ind. Eng. Chem. (Analyt. Edit.) 2, 390-391 (Oct. 15, 1930).—A method has been devised consisting essentially in subjecting a definite area of the paper preferably 6 sq. in.) to saturated air at constant temperature (preferably 30 deg. C.) and at low pressure (5 mm. of mercury), and determining the amount of moisture which passes through the paper in a given time (2 hours) by absorbing in calcium chloride tubes which are weighed before and after the test. The apparatus used and technic of the test are described in detail. The results obtained are comparable with those of the long-time tests (2 weeks to several months) usually employed. Data obtained by the method are presented and show that in papers of high moisture resistance the presence of pinholes in the original paper has a much greater effect on the moisture resistance than the handling and creasing of the paper as done in practice.—A.P.-C.

Precision Color Measuring Apparatus. Monroe Barnard and Paul McMichael. Paper Trade J. 91, No. 14, 55-58 (Oct. 2, 1930).—A discussion of the merits of the A. P. C. (American Photoelectric Corp.) opacimeter and the A. P. C. photoelectric spectrophotometer. The first enables one to measure the translucency of paper with a degree of accuracy within 0.5 per cent. In the latter the various sources of error in the measurement of the spectral transmission or reflection characteristics of a substance have been eliminated or compensated for, and moreover the instrument is simple of operation and maintenance. With the two instruments one can secure the accurate data necessary to evaluate the several attributes of pulp or paper that influence our concepts of their colors.—A.P.-C.

Bond Strength testing of board and heavy weight papers. Allen Abrams. Paper Trade J. 91, No. 4, 56 (July 24, 1930).—A method has been developed consisting of glueing a 2 by 2 inch sample securely between two blocks of wood, allowing the combination to set for two hours under a weight of 6 lbs., determining the bond strength by attaching the upper block to a fixed support and applying a load to the lower block until the break occurs, and calculating the bond strength to a basis of pounds per sq. in. Metal blocks were not found entirely satisfactory for adherence to the board. Comparison of "N" brand silicate (Philadelphia Quartz Co.) and a cellulose-derivative cement (duPont Cement No. 5426) indicated that silicate gives a higher test after a short "set" but that with either adhesive the bond strength increases with lengthened period of setting. The following typical results are given: 0.016 test liner 19.4, 11.3; .027 kraft board 18.3; machine dried pulp 4.7 lbs. per sq. in.—A.P.-C.

Permanency and Durability of Paper. Helen W. Kiely. Technical Association Papers Series 13, No. 1, 241 (May 1930).—The difference between permanency and durability is explained, and the use of physical and chemical tests for judging of the permanency and durability of paper are briefly discussed—A.P.-C.

Permanence Standards for Paper. B. W. Scribner. Paper Mill 53, No. 24, 4-5, 38, No. 25, 13-15 (June 14, 21, 1930).—An outline of the available information on the permanence of papers, indicating how it may be applied to formulate definite technical specifications for permanence qualities. A classification based on strength and purity is suggested, which places papers in the following four groups: (1) papers of absolute permanence, (2) papers having a minimum life of 100 years; (3) papers having a minimum life of 50 years, (4) papers for temporary use.—A.P.-C .

Determination of the Volumetric Composition of Paper. Parker K. Baird and C. E. Hrubesky. Paper Trade J. 91, No. 4, 48-51 (July 24, 1930); Technical Association Papers, Series 13, No. 1, 274-277 (May 1930).—An outline is given of a tentative method for the determination of the volumetric composition

of paper and paper board, comprising the following individual determinations; dimensional volume, solid fraction (by volume and average specific gravity of the solid components), liquid fraction, total air fraction of pores, recesses and voids, combined pore and recess volume, void volume, fractional pore area of the paper, average effective pore radius and total number of pores per unit area of paper, effective radius of the largest pores. A combination of the nine determinations make it possible to characterize a sheet as regards each of its major components. From the characterizing results obtained in the determination of the volumetric composition of paper, particularly the detailed composition of the air fraction and its relation to the solids, the methods outlined serve as tentative procedures, for extending knowledge toward the evaluation of papers in terms of their use requirements. The detailed procedure and the data collected up to the present will be published later.—A.P.-C.

Microscopic Study of Wallboard Structure. Florence Hooper. Paper Trade J. 91, No. 7, 59-61 (Aug. 14, 1930)—Microphotographs of thin sections (both parallel and perpendicular to the surface of the board) of 8 kinds of board are given and briefly discussed. It was found that the various tissues in any given board in general retain their identity; the structure of a board is partly determined by the structure of the tissues used in its preparation; the material used in the preparation of a board may be determined by microscopic examinations to the extent that it is possible to recognize the individual tissues of various plants; the arrangement of the tissues in the several boards are very similar.—A.P.-C.

Permanence and Paper Making. Th. Bentzen. Whiting, Plover Paper Company. Paper Industry 12, 73 282-285, 477-478, 687-689, 838-841 (Aug. 1930).—A discussion of the various factors involved in the permanence of paper.—A.P.-C.

Directional Designation in the Physical Tests of Paper. F. T. Carson and L. W. Snyder. Paper Trade J. 91, No. 12, 65-66 (Sept. 18, 1930).—A diagram is given indicating how the specimens for physical tests should be cut with respect to the machine direction of the sheet in order to conform to the procedures prescribed in the official methods of the Technical Association of the Pulp and Paper Industry, and how a maximum number of tests may be obtained from a limited sample. The directional indication in the case of the tearing test is discussed, and it is concluded that the designation prescribed in the Official Method, which is at variance with widespread practice in the paper industry, is logically correct.—A.P.-C.

Properties, Tests and Applications of Papers in the Electrical Industry. A. R. Mathis. Chimie et Industrie Special No. 445-451 (March 1930).—The properties required of such papers are briefly outlined, together with the various tests to which they are subjected.—A.P.-C.

Vapor Transmission Through Papers. Allen Abrams and Warren A. Chilson. Paper Mill 53, 38, 24-28 (Sept. 20, 1930).—Results are given of an investigation of a simple and reliable method for the determination of the resistance of paper to the penetration of water vapor, consisting essentially in exposing the paper to water vapor for a definite time, having saturated air on one side of the sheet and a definite lower humidity on the other side. As a result of the work, the following technic is tentatively suggested for adoption as official: place 50 cc. of distilled water in an aluminum can having an area of 7.07 sq. in. at the top, firmly attach a sheet of the paper to be tested over the top, weigh to 0.1 mg., place in a room at constant humidity and temperature (preferably 70 deg. F. and 65 per cent, 50 per cent humidity can be used, but the vapor transmission rate is considerably reduced) in front of an electric fan and at such a distance as to give an air velocity of about 600 to 700 ft. per minute over the paper, after a suitable period (6 to 24 hours) weigh again, and from the loss calculate the transmission of vapor through the paper per 100 sq. in., per 24 hours.—A.P.-C.

Modified Schopper-Riegler Freeness Tester. Robert M. Boehm, Paper Trade J. 91, No. 9, 39-41 (Aug. 28, 1930).—Visual examination, fiber count, and fractional separation by means of screens are unsuitable as control methods for determining the characteristics of stock in the manufacture of insulating boards and other products requiring a long coarse fiber. The freeness test as usually carried out is open to a number of objections when applied to board mills, but it has been adapted to suit their requirements by making the following modifications in the Schopper-Riegler tester: the slow-water orifice is enlarged from 0.095 to 0.375 in., a 0.5 per cent consistency is used, the receiver of the instrument is enlarged so as to hold 5,000 cc. instead of 1000 cc. of stock.—A.P.-C.

Improved Mullen Tester. James A. Cowley assigner to B. F. Perkins & Son, Inc. U. S. pat. 1,758,688, (May 13, 1930).—The invention provides an attachment for measuring the elongation of the paper during the Mullen test. An indicator casing is secure to the clamping member of the tester. A lever is pivoted in the casing, the other end of the lever being curved and lying on the center of the area subjected to pressure during the test. The inner end of the lever is connected to and arranged to actuate the pointer of the indicator so as to show the height to which the paper rises before bursting. A stop in the casing limits the movement of the lever and pointer, and a spring connected between the lever and indicator casing normally holds the lever against the stop so that the pointer lies over the zero of the scale.—A.P.-C.

Device for Measuring the Temperature of Drier Rolls. Edward D. Phinney. U. S. pat. 1,758,532 (May 13, 1930).—A shield or hood is provided, which fits over the surface of the roll and is close to it, but out of contact with it. It is such dimensions that the air drawn into the narrow space between it and the roll is heated to the temperature of the roll by the time it reaches the center of the hood, at which point there is a thermometer bulb or a thermocouple around which the heated air is made to pass. The outside of the shield or hood is suitably insulated.—A.P.-C.

Stock Regulator. William P. Feeney. U. S. pat. 1,763,691 (July 17, 1930).—The invention covers modifications in the details of construction of the Feeney stock regulator (U. S. pat. 1,134,831, April 6, 1915; U. S. pat. 1,143,523, June 15, 1915. U. S. pat. 1,331,057 Feb. 17, 1920) designed to prevent stratification and settling of the pulp and to eliminate lag in the reaction of the control mechanism to changes in the characteristics of the stock.—A.P.-C.

Razek-Mulder Color Analyzer for Paper. Jackson Burgess. Paper Trade J. 91, No. 11, 69-70 (Sept. 11, 1930). Paper Mill 53, No. 38, 18, 21 (Sept. 20, 1930).—A brief description of the operation and application in the paper industry of the Razek-Mulder color analyzer, which is a photoelectric spectrophotometer designed so as to automatically plot the color curve of the sample being analyzed.—A.P.-C.

Matching Colors with the Colorscope. H. H. Sheldon. Paper Trade J. 91, No. 11, 70-71 (Sept. 11, 1930).—The colorscope is intended to show whether two samples match or not and how far apart they are in terms of commercial shades. It is based on the use of two photoelectric cells introduced in a balanced bridge circuit of special construction, and the difference between the two responses in the individual cells is amplified and noted through the use of portable galvanometer. Its operation and applications are briefly described.—A.P.-C.

Microscope in the Paper Mill. A. Lambrette. Industrie Papetiere 9, 283-287 (Aug.), 351-355 (Oct. 1930).—a discussion of the errors which are liable to be made in the use of microscopes, especially with high magnifications, either through inexperience or through defective construction of the instrument,

and the precautions which should be observed in the selection and use of a microscope.—A.P.-C.

Adhesives

Adhesive. Harry F. Gardner, assignor to Certain-Teed Products Corp. U. S. pat. 1,751,989, (March 25, 1930).—An adhesive suitable for uniting wall board plies consists of a mixture formed of 41 deg. Bé. sodium silicate solution, 1.8 lb. of fibrous talc per gallon of silicate solution, and about 25 per cent of a 20 deg. Bé. brine (based on the volume of the silicate solution).—A.P.-C.

Adhesive Composition. Herbert O. Keay and David Tatley. Can. pat. 297,664, (Feb. 25, 1930).—Adhesive composition for bonding sheets of fiber board is made by mixing 1 part of weight of casein with sufficient water to wet the same, mixing 2 parts by weight of lime with water and stirring till smooth, then mixing the casein with the lime and water until the casein is completely dissolved and then stirring in 4 parts by weight of a filler (portland cement, calcium carbonate, magnesium oxide, silicate or clay) with sufficient water to bring the composition to a flowing consistency.—A.P.-C.

Starch in Paper Making. H. A. Crown. Paper Mill 53, No. 20, 14, 16 (May 17, 1930).—A brief description of the manufacture of starch and of its industrial applications, particularly in the paper industry.—A.P.-C.

Silicate in Paper Making. A. C. Nielsen Co., Paper Mill 53, No. 36, 26, 28 (Sept. 6, 1930).—A report of a survey made at the mill of the Chemical Paper Manufacturing Company, Holyoke, Mass. The mill has been using silicate consistently for 20 years, using 100 tons yearly in the production of about 4300 tons of paper specialties. Its use showed no apparent effect on the speed or drag on beaters or jordans, and no corroding effect on fourdrinier wires, though white water used as make-up water. Comparative test data are no longer in existence, but the management attributes the following to the use of silicate: more thorough hydration in equal beating time, increased hardness and rattle, improved finish on all papers, increased strength (average of 5 points in Mullen test), greater ash content of paper.—A.P.-C.

Silicate of Soda. A. C. Nielsen Co., Paper Mill 53, No. 17, 18-19, 35 (April 26, 1930).—A report of a survey made at the mill of the Flambeau Paper Company, Park Falls, Wis. Use of silicate of soda in the beater furnish has resulted in better quality of finished paper, increase of 5 to 11 per cent in Mullen test, appreciable reduction in beating time for the same quality or improvement in quality for the same beating time, and complaints from customers regarding quality of paper eliminated. Treatment with silicate of soda and sodium hypochlorite during the week end shut-downs dissolves slime and eliminate breaks, resulting in a saving estimated at 9 times the cost of treatment. Silicate was found better than vegetable glue for roll capping because it costs less, avoids spoilage of paper and is ready for use directly from the drums. Finishing room floor, painted twice yearly with silicate, is smooth, hard, dustless and non-skid. Addition of silicate to the glycerine-litharge mortar used for cementing sulphite digested linings accelerates the setting of the cement and increases the strength and the resistance to acid.—A.P.-C.

Starch in Paper Making. Geoffrey E. Govier Paper Maker & Brit. Paper Trade J. 79, 509-510 (May 11), 623 (June 2); 80, 55-56) July 1, 1930).—A description of the manufacture of paper makers' starch and of hydrolyzed and oxidized starches, and of the methods used for their examination and analysis.—A.P.-C.

Special Papers and Processes

Modern Manufacture of Boards. Anon. L'Industrie Papetiere 9, 131-135 (April 1930).—A brief discussion of the merits of the combined fourdrinier and cylinder machine recently designed by J. M. Voith & Co., for the production of paper and boards, one of which has been installed in Italy and has been in satisfactory operation for over two years.—A.P.-C.

Mfg. of Hardened Cardboard Panels. H. Calmels. Rev. Gen. Mat. Plastiques 6, 195-203 (April 1930).—A detailed discussion of their manufacture, more particularly of their drying, pressing and finishing.—A.P.-C.

Fireproofing Paper and Boards. Joseph Rossman. Paper Trade J. 91, No. 9, 42-43 (Aug. 28, 1930).—A review in the form of abstracts of 25 U. S. patents from 1866 to 1929.—A.P.-C.

Liner Board or Paper. Albert L. Clapp. U. S. pat. 1,765,860, (June 24, 1930).—A composite sheet suitable for use in making boxes or cartons comprises a bottom layer of cellulosic material such as a mixed paper pulp and a top layer comprising a mixture of a pulverulent coating material such as wood flour, china clay and kisselguhr.—A.P.-C.

Fiber Board. Thomas L. Bodie. Can. pat. 302,413, (July 29, 1930).—Crude fiber, such as straw, is soaked in clear water, surpius water is removed and the fiber is soaked in a solution of sodium chloride. The product is dried and dampened first with magnesium chloride solution and then treated with magnesite (preferably calcined). The product is molded into sheets or blocks. The board has great fiber-resisting, sound-proofing and insulating properties.—A.P.-C.

Apparatus for Making Boards. Ralph L. Loomis assignor to C. F. Burgess Laboratories, Inc. U. S. pat. 1,751,866, March 25, 1930.—One or both liners are made on an ordinary single-cylinder machine. The filler is made on a single-cylinder machine at right angles to the other two, and is laid on the bottom liner on which it is deposited in zig-zag at a suitable angle which depends on the relative speed of the two machines. If desired, the filler web may be cut into relatively narrow strips as it is being deposited on the bottom liner.—A.P.-C.

Apparatus for Producing Fiber Board. Harry C. Raynes assignor to Bemis Industries, Inc. U. S. pat. 1,754,370, (April 15, 1930).—The board is composed of two or more layers of different kinds of stocks which are united so as to form a practically integral sheet. A cylinder mold is mounted in the side and near the bottom of the stock vat, the bottom of which is formed of a traveling endless wire. The vat is divided into two or more compartments, each containing a different kind of stock. The layers or pulp which build up on the cylinder and on the wire, respectively, are united as they leave the vat, and pressed together to weld them into a practically integral sheet. The wire is supported by closely spaced table rolls.—A.P.-C.

Machine for Making Fiber Board. Otto Mantius. U. S. pat. 1,764,456, (June 17, 1930).—The soft, wet sheet of pulp is introduced between hard, plane converging surfaces, traveling in the same direction as the pulp. These surfaces may constitute cooperating reaches of two endless conveyors (preferably, but not necessarily, slat conveyors). They are supported so as to exert a sustained and progressively increasing pressure on the sheet, thus preventing reabsorption of the expressed water, such as takes place with the usual sets of presses used on paper and board machines.—A.P.-C.

Process of Making Fiber Board and Apparatus Therefor. William H. Mason assignor to Masonite Corp. U. S. pat. 1,767,539, (June 24, 1930).—The invention relates more particularly to equipment for handling the moist sheets from the fourdrinier machine to the hydraulic press. The moist sheet, after having been cut to the desired dimensions, is delivered by means of a tilting carrier to a set of superposed trays, the sheet being automatically placed on successive trays. When all the trays have been filled, they are automatically and simultaneously discharged on to a truck having corresponding trays or shelves. The truck is similarly discharged into a hydraulic press with steam-heated platens, the latter being arranged one above the other and corresponding in number to the number of trays on the truck. After

pressing and drying, the mechanism is operated in the reverse direction to discharge the boards back on to the truck, where they are allowed to cool.—A.P.-C.

Paper Specialties

Dielectric Sheet Material Suitable for Condensers, Etc. Albert E. H. Fair, assignor to Arthur D. Little Company, Inc. U. S. pat. 1,757,010 (May 6, 1930).—Paper sheets are formed from a mixture of a high alpha-cellulose wood pulp and a sulphate pulp.—A.P.-C.

Cigarette Paper. B. Seferiadis. Eng. pat. 325,125 (Feb. 27, 1929).—The aroma of the paper when burning is improved by treating it with a solution of gum mastic or other suitable natural or artificial resin-gum (which may be incorporated in the paper during manufacture or added to the finished paper). —A.P.-C.

Absorbent Paper. E. I. duPont de Nemours & Co. Fr. pat. 675,363 (May 17, 1929).—Pulp for absorbent paper suitable for impregnating with compositions containing resins, pyroxylin, rubber, etc., is prepared by treating the pulp (which may be groundwood, kraft, jute, soda pulp, rope, sulphite or linen) with a swelling agent (such as caustic alkali, sulphuric acid, zinc chloride, a ticocyanate, ferric chloride or a cuprammonium solution) having the effect of kinking or curling the cellulose fibers, and then washing out the swelling agent.—A.P.-C.

Waterproof Paper. Reed P. Rose and Harold E. Cude assignor to General Rubber Co. U. S. pat. 1,756,035 (April 29, 1930).—A protective colloid such as "feculoid," glue or casein, and an alkali such as ammonia or caustic soda are added to beaten paper-making fiber and the material is mixed with a dispersion of aluminum resinate or other suitable paper-waterproofing material and a rubber dispersion, the waterproofing material and rubber are deposited on the fiber, and sheets are made from the material.—A.P-C.

Process for the Mfg. of Fraud-Proof Paper. Jules Gernaert, Brussels, Belgium. German pat. 487,824 (Jan. 29, 1925).—The paper consists of two outer layers and one filler, insolubly sized and if necessary perforated. The method of preparation is characterized therein, that for the purpose of preventing the separation of the layers of paper without destroying the filler, this layer consists of a sheet of slightly less strength and is sized without previous moistening and therefore without distorting or shrinking its design.—J.F.O.

Process for the Manufacture of Safety Paper. I. G. Farbenindustrie A. G. Frankfurt a.M. German pat. 487,994 (Oct. 1, 1924).—The invention consists of coloring the surface of the paper with a layer as thin as possible. Contrary to the usual method, a size sheet is led through a coloring solution and this is not squeezed out as usual between a pair of rolls, but washed immediately after the coloring process. The paper provided in this manner with a thin layer of coloring is suitable as safety paper in that erasures are easily recognized.—J.F.O.

Concerning Hand Made Paper. Walter Zembritzki. Zellstoff Papier 10, No. 3, 179-80 (March 1930).—Figures and facts concerning the present production of hand made paper.—J.F.O.

Non-Dusting Off-Set Paper. G. P. Muller, Zellstoff Papier 10, No. 4, 245 (April, 1930).—The causes for dust are, insufficient binder for the filler, fibers sticking out from the paper and dull slitter knives. The size of the particles of filler plays an important part, also the suction of the couch and press rolls and even the drying.—J.F.O.

Waterproofing Paper Articles Such as Shotgun Cartridge Cases. C. E. Burke and F. C. Hann assignors to Imperial Chemical Industries, Ltd. Eng. pat. 315,227, (July 9, 1928).—Solutions are used comprising cellulose derivatives such as cellulose acetate or benzyl, methyl or ethyl cellulose, together with suitable solvents and with or without natural resins, etc.—A.P.-C.

Waterproofing Composition. C. E. Burke and W. E. Lawson assignors to E. I. du Pont de Nemours & Co. Eng. pat. 315,228 (July 9, 1928).—Compositions suitable for waterproofing cartridge cases or other articles formed from paper comprise polymerizable or polymerized substituted ethylenes or polyolefines, or their homologues or derivatives, such as metastyrene, preferably with a softening agent.—A.P.-C.

Waterproof Receptacles of Fibrous and Thermoplastic Material. A. L. Clapp. Eng. pat. 319,745 (Sept. 27, 1928).—A waterproof thermopalstic material such as paraffin is mixed with a fibrous pulp suspension at a temperature above the melting point of the thermoplastic material and bottles or other articles are formed from the mixture while it is hot. Sizing such as rosin size and a precipitating agent such as alum also may be added. Groundwood, kraft or sulphite pulp may be used with paraffin, montan wax, carnauba wax, rosin or asphalt.—A.P.-C.

Coating Vessels Formed of Paper Pulp. Fritz Frank. U. S. pat. 1,753,565 (April 8, 1930).—The material is moistened with an aqueous solution of a substance such as ammonia having an alkaline reaction and containing dissolved barium salts and is then treated with a sizing liquor containing a medium such as sulphuric acid capable of precipitating the barium salts.—A.P.-C.

Machine for Cutting Paper Prior to Forming Into Tubes. Windmoller & Holscher G.m.b.H. Belg. pat. 362,355 (Aug. 31, 1929).—A number of webs are passed through superposed perforating rolls. They are then brought together so that the perforated lines are superposed stepwise and are passed through feeding rolls and then through tearing rolls running at a higher speed than the feed rolls.—A.P.-C.

Process for the Mfg. of Fibrous Articles Impregnated With High-Melting Pitch. E. Rudin and H. Kollbrunner. Belg. pat. 366,173 (Jan. 31, 1930).—Articles of organic fibrous materials are impregnated with low-melting pitch and heated in a current of air or gas at 150 deg. C. for a sufficient length of time to convert the low-melting pitch into high-melting pitch.—A.P.-C.

Pitch-Impregnated Fibrous Material. Everett W. Lovering and Wallace B. Van Arsdel assignors to Brown Company. U. S. pat. 1,751,935 (March 25, 1930).—A material such as a paper or pulp tube is impregnated with pitch and provided with a coating comprising blown asphalt bonded to the impregnated material with stearin pitch.—A.P.-C.

Flexible Cartons of Paper or the Like for Milk, Etc. A. R. Jahn. Eng. pat. 321,176 (July 25, 1928).—Receptacles such as paper cartons for holding milk are treated with a composition such as an amyl acetate "dope" containing at least 2.5% of nitrocellulose with which an adhesive such as copal gum also is used.—A.P.-C.

Use of Alkaline-Process Pulps for Rayon Mfg. George A. Richter assignor to Brown Company. U. S. pat. 1,754,437 (April 15, 1930).—A pulp such as kraft or soda pulp which undergoes disintegration if soaked in unbeaten sheet form in a solution of caustic soda, is beaten and sheeted, the sheeted pulp is treated with caustic soda solution, and the treated sheet is converted into viscose.—A.P.-C.

Paper. George A. Richter assignor to Brown Company. Can. pats. 299,297 and 299,298 (April 15, 1930).—**No. 299,297**—A paper-making composition comprises substantially unbeaten purified wood pulp of a difficulty hydratable character and having a relatively low pentosan content blended with about 5 to 15% of highly gelantinized pulp of a more easily hydratable character and having a higher pentosan content. **No. 299,298**—A paper-making composition of unbeaten wood fiber purified to a high alpha-cellulose content and freed from short fiber portions including fibre fragments and colloidal cellulose, and gelantinized pulp purified to a high alpha-cellulose content.—A.P.-C.

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References to the abstracts are preceded by the letter A and those to the patents by the letter P. Other entries refer to original articles appearing in the Technical Section. Author entries for the original articles are given in Capitals. No author entries are given for the abstracted articles or patents.

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Waste—Junk— By-Products*

By C. M. Baker[1]

Managers of American industry are prone to consider a certain amount of industrial waste necessary. They look upon junk with disdain but point with pride to any by-products which they may consider the result of their ingenuity. Nevertheless, waste and junk are potential by-products. The by-products of today were the waste and junk of yesterday. The pulp and paper industry has coined one word to include all three, shrinkage. Whether the loss is due to mismanagement, carelessness, or gross neglect it is camouflaged as shrinkage.

Waste Defined

Waste may be defined as loss without equivalent gain. One writer has stated that "Waste is merely raw material in the wrong place. Waste—by-products—staple; such constitutes the brief evolution of more than one of the world's leading lines of trading." Webster defines junk as "old iron or other material, glass, paper, cordage, or other waste or discarded material which may be treated or prepared so as to be used again in some form." By-product is defined as a secondary or additional product; something produced in addition to the principal product manufactured. Waste and junk, therefore, are both potential by-products, and they constitute an economic loss that should be conserved.

"Waste in Industry," a report by the Committee on Elimination of Waste in Industry of the Federated American Engineering Society in 1921, records a careful study of four aspects of waste in industry as follows:

1. Low production, caused by faulty management of materials, plant, equipment, and men.

2. Interrupted production caused by idle men, idle materials, idle plant, idle equipment.

3. Restricted production intentionally caused by owners, management, or labor.

4. Lost production caused by ill health, physical defects, and industrial accidents.

The survey of this committee indicated 50% of the responsibility due to management and 25% to labor. A rather energetic national program has been initiated to reduce these wastes. In this paper, however, the writer wishes to discuss more specifically the problem of waste materials, wastes that are considered more analagous to junk or discards from industry.

National Extravagance

America has been extravagant with its natural resources. Our bountiful prosperity has been due to the exploitation rather than the economic utilization of our national resources. Choice trees have been cut from our forests, and the slashings left for a tinder which, ignited, has burned the remaining timber and the seedlings necessary for reproduction. Wastes or discard from manufacturing processes have been burned, dumped onto waste land or discarded into our streams without the financial return possible in their utilization, but on the contrary, producing nuisances and increasing the destructive waste.

Contrast this with the development in Germany, a country lacking in many of the natural resources with which the United States is blessed. The balance of trade so favorable to the Germans prior to the world war, and their ability to continue the war so long after the blockade, was due primarily to their utilization of waste. The Germans purchased fruit stones or pits from packers in California, conveyed them half-way across the world, cracked the stones, and from the meats manufactured essences and liquors; from the fibrous residue, cattle food, and from the shell a charcoal valuable in laboratory research. Many wastes were purchased from other nations, conveyed to Germany, manufactured into valuable products by secret processes and sold back at a substantial profit.

Fifty years of intensive research at a total cost of some $800,000,000 developed coal tar by-products to an estimated annual return of $400,000,000. The value of dyes that were manufactured through these processes alone was approximately $250,000,000 annually. Coal gas, the original staple in this industry, has become the by-product, and the by-product the staple. We could not afford gas for cooking and heating in our homes were it not a by-product of the coal tar industry, the development of which has been due largely to the patience, perseverance, and genius of the German scientists.

Necessity, the Incentive

Necessity is said to be the Mother of Invention, but waste is often the incentive, the impetus, the necessity leading to invention. Waste, therefore, must be the Dad. Too often the prod necessary to stimulate waste utilization consists of complaints, litigation, or legislation regarding wastes, causing nuisances or conditions deleterious to other industries. Forced utilization under such conditions has in many instances resulted in substantial financial return to the industry involved. The same could have been accomplished, however, without the embarrassing complaints and the expensive litigation had economic utilization been applied voluntarily by the industry.

In the early manufacture of soda in England chlorine gas was a waste product creating a nuisance which resulted in legislation for its abatement. This necessitated passing the gas through lime

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[1] Engineer, American Paper and Pulp Association.

and the manufacture of bleach or chloride of lime for which, however, there was no adequate demand or market at the time. Developing a market for this by-product led to the discovery of its bleaching properties, upon which our whole process of bleaching fabrics and fiber is now based. The roasting of sulphide copper ores caused air pollution which desolated the area for miles in the vicinity. Threatened litigation caused the utilization of these gases in the manufacture of sulphuric acid resulting in a substantial financial return to the industry. It is said that the packing industry utilizes everything except the squeal from the pig, yet the value of grease still wasted with the sewage of this industry amounts to hundreds of thousands of dollars annually. A Corn Products plant in the Sanitary District of Chicago was confronted with the problem of waste disposal. It was estimated that the waste from this industry was equivalent to the domestic sewage from 350,000 people, and that it would cost $1,000,000 to install a treatment plant Utilization within the industry was developed to such an extent that the population equivalent of the waste was reduced to about 15,000 so that it could be taken into the sanitary sewage of the vicinity without treatment. Losses recovered in this utilization resulted in a financial return of about $500,000 annually. About one-half of our cement is now made from slag, formerly a waste, at an annual value of some $150,000,000.

Magnus W. Alexander, president of the National Industrial Conference Board, once said: "The ability to recognize waste marks a certain stage in human development."

Waste in the Pulp and Paper Industry

At your February and October meetings in 1928 it was pointed out that the pulp and paper industry is losing between $6,000,000 and $10,000,000 annually because of ineffective fiber utilization. These are wastes which may be accurately determined and measured in every mill, yet they are usually included in the general term, shrinkage. In the October, 1928 meeting the writer stated that "It does not seem logical and consistent to camouflage this loss by the term 'shrinkage,' when by the application of known processes it can be recovered to the financial advantage of the industry. Members of the Cost Association can do much to bring this situation to the attention of their executives by including in their financial statement an estimate of the actual losses, and differentiating between true losses and permissible shrinkage." It would be interesting to know to just what extent this suggestion has been followed and what the results have been.

The greatest loss in the pulp industry is the sulphite waste liquor which carries into our streams one-half the dry waste of the wood used. Since 1,676,000 tons of sulphite pulp was manufactured in the United States in 1929, an equal amount of dry waste from the wood, or potential by-products, was discarded into our streams. It is probable that the time will come when the sulphite method of pulping wood will be analagous to the coal tar industry where the coal gas is now the by-product. It seems logical that sulphite pulp may become the by-product and the other materials the staple.

During the past year the writer visited and made preliminary surveys in fifty different paper mills. A conservative estimate of the net savings that could be made in effective white water utilization in these mills is $1,000,000 annually. Fiber is not the only loss in connection with inefficient white water utilization. In the paperboard industry where hot water is used in preparation of the pulp, there is a substantial saving in heat, one mill estimating that the saving in fiber due to white water utilization was $25 daily and in heat units, $75. Reduction in the consumption of fresh water is also an important factor. One mill purchasing water from the municipality has reduced its water bill about $75 daily by white water utilization. There is also a substantial saving in filler, size, and other chemicals because a certain amount of these materials which were formerly wasted is brought back into the sheet by white water recirculation.

Time is not available, nor does it seem desirable, to discuss methods of white water utilization in this paper. Suffice it to say that practical methods have been developed, and are in use in every branch of the industry. Their application or extension to other mills, therefore, is merely one of adaptation. Adaptation to a particular mill, however, requires development in the mill itself.

There are two important steps in the devolpment of white water utilization: first, the equipment, piping, tanks, etc. necessary for its recirculation and re-use; second, its application in a mill. The first is relatively simple and several practical and economical methods have been developed. The second step requires study and development. The installation of equipment can not be completed one day and successfully placed in operation the next. Adjustments will have to be made in the process to compensate for the papermaking materials formerly wasted but now returned into the system. The personnel must be trained in the operation of the new system. The final results, however, will well repay for all efforts and money expended.

Waste is defined as raw material in the wrong place, junk as refuse that can be utilized to a profit. Waste and junk are potential by-products, yet the paper-making materials in white water are neither. They are the finished product, the pulp mixed with the chemicals and other materials, which make the final sheet of paper, allowed to run to waste. It is not necessary to develop by-products, for their utilization lies in bringing these materials back into the sheet, for which they were intended.

It does not require any great skill nor secret processes to determine definitely the extent of white water losses, nor does it require any patented or secret processes to recover and utilize them. Such losses may be accurately computed in dollars and presented as a financial liability. They should be so computed and presented to mill executives and personnel in order to stimulate activities in their recovery and utilization. Cost and accounting men, who do less, are derelict in their responsibilities.

Less money spent in expansion and more in mill economy and waste utilization will bring better returns and reduce the gross waste of over-production, which results in destructive competition, idle equipment and unemployment.

The American Paper and Pulp Association, through its engineering department is always ready to assist any mill in its engineering problems. A preliminary white water survey will be made without charge upon request of the executive of a member mill. Additional services will be rendered at actual cost. This service will be extended to non-member mills at a cost of actual expenses plus twice the salary of the personnel involved, providing such service can be rendered without interfering with the service to members.

Extends Position in Eastern Utilities

WATERTOWN, N. Y., March 9, 1931.—Announcement has just been made of an important transaction in which the United Corporation, large Morgan-Bonbright Utility Holding Company, will extend its position in the eastern utility field by taking over an additional fifteen per cent in the Niagara Hudson Power Corporation which is controlled by the St. Regis Paper Company. Under the arrangements the St. Regis Company will receive in exchange for the 4,070,000 shares of Niagara Hudson common, which it holds, approximately 2,170,666 shares of United Corporation common stock. In its last report the United Corporation disclosed holdings of 1,673,250 shares of Niagara Hudson Common stock which with the stock acquired through this latest deal will give the company a 22 per cent interest in the Northern New York utility. The next largest stockholder is said to be the Niagara Shares Corp. which with the Schoelkopf family controls more than 3,500,000 shares. The third largest stockholder is believed to be the Aluminum Company of America with holdings amounting to 2,500,000 shares. The principal object of the transaction is said to be closer cooperation between Niagara Hudson and other utilities in which United Corporation is principally interested.

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED
and
MACHINE FINISHED BOOK
and LITHOGRAPHIC
PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

also

Bleached Spruce Sulphite and Soda, Kraft Pulp

280 Park Ave. New York — 35 East Wacker Drive Chicago

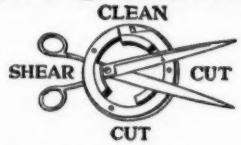
503 Market St., San Francisco, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

a clean cut ~ a sure cut ~ a shear cut ~

— *keep upkeep down?*

yes!

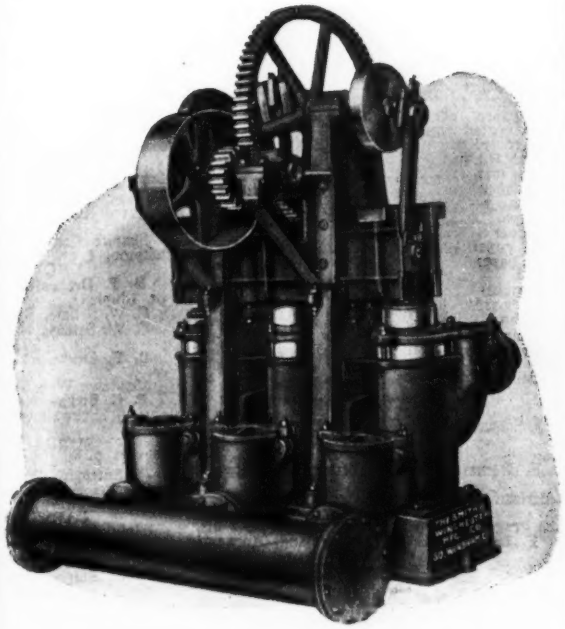
LANGSTON
Slitters & Rewinders



STUFF PUMPS

OUR "TRIPLEX" STUFF PUMP

is on a par with all other Pulp and Paper Mill Equipment we manufacture. The fact of its satisfactory use in leading mills attests its efficiency.



Built for service, it handles stock with speed and assurance of satisfactory results.

The SMITH & WINCHESTER MFG. CO.

SOUTH WINDHAM, CONN.

FOR OVER A CENTURY BUILDERS OF

FOURDRINIER and CYLINDER MACHINES, PAPER BAG MACHINES, JORDAN ENGINES

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MARCH 7, 1931

SUMMARY

Cigarette paper	10 cs.
Wall paper	279 bls., 27 cs.
Paper hangings	2 bls., 24 cs.
News print	5724 rolls
Printing paper	100 cs.
Wrapping paper	12 rolls, 5 bls., 13 cs.
Packing paper	52 cs.
Filter paper	6 cs.
Drawing paper	8 cs.
Transfer paper	1 cs.
Decalcomania paper	23 cs.
Tissue paper	54 cs.
Surface coated paper	55 cs.
Baryta coated paper	75 cs.
Metal coated paper	56 cs.
Coated paper	30 cs.
Cover paper	4 cs.
Bible paper	6 cs.
Raw paper	1 cs.
Shelf paper	6 cs.
Colored paper	14 cs.
Writing paper	4 cs.
Envelopes	43 cs.
Bristol paper	17 cs.
Bristol boards	2 cs.
Cellophane	3 cs.
Card board	13 cs.
Card board boxes	20 cs.
Straw boards	164 rolls
Miscellaneous paper	16 bls., 86 cs.

CIGARETTE PAPER

P. J. Schweitzer, Pr. Harrison, Marseilles, 10 cs.

WALL PAPER

J. E. Bernard & Co., Westernland, Antwerp, 3 cs.
American Express Co., Westernland, Antwerp, 2 cs.
The Prager Co., Westernland, Antwerp, 247 bls.
R. F. Downing & Co., Westernland, Antwerp, 4 cs.
F. J. Emmerich, Lancastria, Southampton, 1 bl.
A. L. Diament & Co., Mauretania, Southampton, 2 cs.
——, Grootendyk, Rotterdam, 12 cs.
R. F. Downing & Co., Kinai Maru, Kobe, 14 bls.
F. J. Emmerich, New York, Hamburg, 17 bls.
Irving Trust Co., New York, Hamburg, 4 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Banker, London, 2 bls., 1 cs.
Whiting & Patterson Co., Inc., Mauretania, Southampton, 1 cs.
American Express Co., Rochambeau, Havre, 22 cs.

NEWS PRINT

W. H. Bell, Markland, Liverpool, N. S., 3805 rolls.
Perkins Goodwin & Co., Luetzow, Bremen, 396 rolls.
Perkins Goodwin & Co., New York, Hamburg, 227 rolls.
——, New York, Hamburg, 135 rolls.
Jay Madden Corp., Sagoporack, Helsingfors, 1161 rolls.

PRINTING PAPER

Okura & Co., Tatsuno Maru, Yokohama, 1 cs.
P. C. Zuhlke, Westernland, Antwerp, 12 cs.
C. Steiner, Westernland, Antwerp, 5 cs.
F. C. Strype, Gootendyk, Rotterdam, 10 cs.
E. Dietzgen & Co., Grootendyk, Rotterdam, 16 cs.
Torch Press, Grootendyk, Rotterdam, 5 cs.
——, Europa, Bremen, 5 cs.
International Trust Co., J. Jadot, Antwerp, 26 cs.
J. Henschel Co., New York, Hamburg, 11 cs.
Keller Dorian Paper Co., Pr. Harrison, Marseilles, 9 cs.

WRAPPING PAPER

Sylvania Industrial Corp., Westernland, Antwerp, 5 cs.
F. C. Strype, Westernland, Antwerp, 1 cs.
Standard Products Corp., Westernland, Antwerp, 5 bls., 7 cs.
Lesem Bach & Co., Westernland, Antwerp, 12 rolls.

PACKING PAPER

Keller Dorian Paper Co., Grootendyk, Rotterdam, 2 cs.
International F'd'g Co., New York, Hamburg, 50 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Lancastria, Southampton, 6 cs.

DRAWING PAPER

Keuffel & Esser Co., Lancastria, Southampton, 1 cs.
H. Reeve Angel & Co., Inc., Lancastria, Southampton, 1 cs.
Favor Ruhl Co., Lancastria, Southampton, 6 cs.

TRANSFER PAPER

Shapiro Bernstein Co., Inc., Lancastria, Southampton, 1 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Alaunia, Liverpool, 10 cs. (duplex).
C. W. Sellers, Europa, Bremen, 7 cs
C. W. Sellers, New York, Hamburg, 6 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., Alaunia, Liverpool, 2 cs.
Meadows Wye & Co., Alaunia, Liverpool, 4 cs.
F. C. Strype, New York, Hamburg, 18 cs.
P. J. Schweitzer, Pr. Harrison, Marseilles, 30 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Westernland, Antwerp, 1 cs.
P. Puttman, Westernland, Antwerp, 5 cs
Gevaert Co. of America, Westernland, Antwerp, 49 cs.

BARYTA COATED PAPER

Globe Shipping Co., Luetzow, Bremen, 50 cs.
Globe Shipping Co., Europa, Bremen, 25 cs.

METAL COVERED PAPER

Globe Shipping Co., Luetzow, Bremen, 17 cs.
American Express Co., Luetzow, Bremen, 4 cs.
Winter Wolff Co., J. Jadot, Antwerp, 35 cs.

COATED PAPER

Bank of America Natl. Assn., New York, Hamburg, 30 cs.

COVER PAPER

International F'd'g Co., New York, Hamburg, 4 cs.

BIBLE PAPER

Charta Corp., Kinai Maru, Kobe, 6 cs.

RAW PAPER

Agfa Ansco Corp., Europa, Bremen, 1 cs.

SHELF PAPER

Kaplan Bros., Europa, Bremen, 6 cs.

COLORED PAPER

Quality Art Novelty Co., Luetzow, Bremen, 5 cs.
S. Gilbert, Luetzow, Bremen, 6 cs.
J. Beckhard, Luetzow, Bremen, 2 cs.
W. Strassburger, Kinai Maru, Kobe, 1 cs.

WRITING PAPER

Globe Shipping Co., Mauretania, Southampton, 3 cs.
American Express Co., Rochambeau, Havre, 1 cs.

ENVELOPES

J. Beckhard, Luetzow, Bremen, 41 cs.
J. Beckhard, Europa, Bremen, 2 cs.

BRISTOL PAPER

Flexo Products Co., Anaconda, Antwerp, 17 cs.

BRISTOL BOARDS

Keuffel & Esser Co., Lancastria, Southampton, 2 cs.

CELLOPHANE

A. Eckstein & Co., Mauretania, Southampton, 3 cs.

CARD BOARD

G. M. Thurnauer & Co., Inc., Westernland, Antwerp, 13 cs.

CARD BOARD BOXES

P. Seguin, Pr. Harrison, Marseilles, 20 cs.

STRAW BOARDS

R. Wilson Paper Corp., Grootendyk, Rotterdam, 164 rolls.

MISCELLANEOUS PAPER

Iwai & Co., Tatsuno Maru, Kobe, 20 cs.
Japan Paper Co., Tai Shan, Yokohama, 20 cs.
S. F. Berliner, Tai Shan, Kobe, 8 cs.
Satisfaction Supply Co., Ontario, Havre, 4 bls.
Palm Fechteler & Co., Luetzow, Bremen, 12 bls.
Bloomingdale Bros., Luetzow, Bremen, 4 cs.
Iwai & Co., Kinai Maru, Kobe, 5 cs.
C. Loverthees, Kinai Maru, Yokohama, 8 cs.
E. Dorman, Rochambeau, Havre, 2 cs.
Keller Dorian Paper Co., Rochambeau, Havre, 10 cs.
——, Pr. Harrison, Genoa, 9 cs.

RAGS, BAGGINGS, ETC.

E. J. Keller Co., Inc., Clairton, ——, 67 bls. bagging.
American Express Co., Lancastria, Southampton, 51 bls. rags.
J. Cohen Son & Co., Lancastria, Southampton, 24 bls. rags.
Guaranty Trust Co., Ontario, Havre, 24 bls. rags.
J. Cohen Son & Co., Alaunia, Liverpool, 30 bls. rags.
J. Cohen Son & Co., Grootendyk, Rotterdam, 19 bls. rags.
W. Steck & Co., Grotendyk, Rotterdam, 27 bls. cotton waste.
Irving Trust Co., Grootendyk, Rotterdam, 100 bls. bagging.
S. Birkenstein & Son, London Corporation, London, 144 bls. paper stock.
Baring Bros. & Co., London Corporation, London, 186 bls. rags.
Irving Trust Co., West Elaara, Antwerp, 88 bls. thread waste.
Castle & Overton, Inc., West Elaara, Antwerp, 71 bls. bagging.
Katzenstein & Keene, Inc., Anaconda, Antwerp, 121 bls. rags.
State St. Trust Co., J. Jadot, Antwerp, 12 bls. thread waste.
E. J. Keller Co., Inc., Collamer, ——, 61 bls rags.

OLD ROPE

Chemical Bank & Trust Co., Westernland, Antwerp, 62 coils.
Chemical Bank & Trust Co., Grootendyk, Rotterdam, 50 coils.
W. Steck & Co., Anaconda, Antwerp, 90 coils.
Irving Trust Co., New York, Hamburg, 62 coils.

CASEIN

A. Hurst & Co., Inc., Grootendyk, Rotterdam, 134 bags.

CHINA CLAY

L. A. Salomon & Bro., Aluania, Liverpool, 401 pkgs., 32 tons.

WOOD PULP

Castle & Overton, Inc., New York, Hamburg, 850 bls. wood pulp, 180 tons.
——, New York, Hamburg, 130 bls. sulphite, 26 tons.
Russell McCandless, Carplaka, Stockholm, 450 bls. unbleached sulphite, 76 tons.

WOOD FLOUR

State Chemical Co., Grootendyk, Rotterdam, 400 bags.

NEWPORT NEWS IMPORTS

WEEK ENDING MARCH 7, 1931

Atterbury Bros. Inc., Sagoporack, Iggesund, 4100 bls. sulphate, 820 tons.
Price & Pierce, Ltd., Sagoporack, Wallvik, 1800 bls. sulphite, 300 tons.

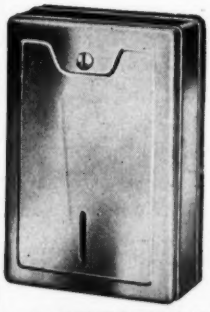
(Continued on page 66)

3 FEATURES of our "TOP FELTS for BOARD MACHINES"

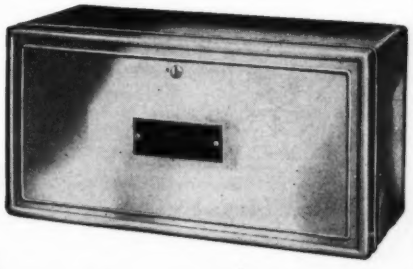
A Trial Felt for Your Machines Will Prove These Facts.

THE WATERBURY FELT CO., SKANEATELES FALLS, N.Y.

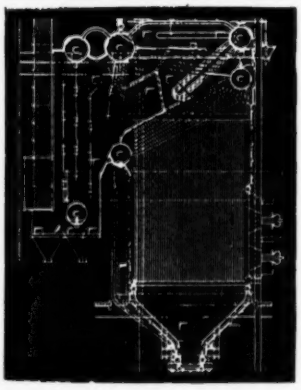
GRIFFITH-HOPE



Dispensing Cabinets
AND
Fixtures
ARE
The STANDARD of the PAPER TRADE
For Towels, Toilet, Napkins, Etc.



GRIFFITH-HOPE CO., West Allis, Wisc.



BADENHAUSEN STEAM GENERATING UNITS

installed in some of the largest pulp and paper mills in the United States and Canada

MAXIMUM STEAM
AT
HIGHEST EFFICIENCY
WITH
LEAST CAPITAL INVESTMENT and OPERATING COSTS

Result:—Enormous savings in cost of pulp and paper produced.

BADENHAUSEN CORPORATION
General Offices and Works
CORNWELLS HEIGHTS (PHILA.), PA.

Cellophane Bag Machines

180 to 200 CELLOPHANE BAGS per minute—or up to 400 paper bags per minute—in a big range of shapes and sizes. Built-in printing units, up to three colors, for oil-base inks. NEW ANILINE PRINTER, printing on web up to three colors, can be attached to these or other bag machines, or used with re-reeling attachment as a separate unit. All units are manufactured by Windmoller & Holscher, who have been making bag machinery for 60 years. More than 30 units have been sold recently in this country. Complete information, by mail, on request.

H. H. HEINRICH, INC.
200 Varick St., New York

Imports of Paper and Paper Stock

(Continued from page 64)

HOUSTON IMPORTS

WEEK ENDING MARCH 7, 1931

——, Luetzow, Bremen, 357 rolls wrapping paper.
——, Luetzow, Hamburg, 235 bls. bagging.

NEW ORLEANS IMPORTS

WEEK ENDING MARCH 7, 1931

Canal Bank & Trust Co., Grootendyk, Rotterdam, 80 bls. rags.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 7, 1931

Brown Bros. Harriman & Co., Tatsuno Maru, Osaka, 45 bls. rags.
The Borregaard Co., Inc., Carlsholm, Gothenburg, 150 rolls paper.
Parsons & Whittemore, Inc., Carlsholm, Gothenburg, 918 bls. wood pulp; 600 bls. sulphite.
J. E. Gefael, Carlsholm, Gothenburg, 189 rolls news print.
J. W. Hampton, Jr., Inc., Carlsholm, Gothenburg, 178 rolls news print.
Guaranty Trust Co., Ontario, Havre, 56 bls. new rags; 78 bls. old rags.
E. J. Keller Co., Inc., London Corporation, ——, 90 coils old rope.
Parsons & Whittemore, Inc., Sagaporack, Stockholm, 73 rolls news print.
Neidich Process Co., Sagaporack, Helsingfors, 89 cs. tissue paper.
Pittsburgh Waste Co., Kinai Maru, Kobe, 100 bls. cotton waste.
Belgam Corp., Kinai Maru, Kobe, 100 bls. rags.
Cotton Products Co., Kinai Maru, Kobe, 40 bls. rags.
G. Strauss, Kinai Maru, Kobe, 50 bls. cotton waste.
American Over-Ocean Corp., Kinai Maru, Kobe, 50 bls. cotton waste.
——, Kinai Maru, Osaka, 100 bls. rags.
Chase National Bank, Kinai Maru, Osaka, 100 bls. rags.
A. E. Claus & Co., Kinai Maru, Kyoto, 50 bls. thread waste.
National Santiary Rag Co., Kinai Maru, Kyoto, 158 bls. rags.
E. J. Keller Co., Inc., Seattle Spirit, ——, 51 bls. rags.

BOSTON IMPORTS

WEEK ENDING MARCH 7, 1931

National Shawmut Bank, Tatsuno Maru, Osaka, 35 bls. rags.
Elliott Adding Machine Co., Tatsuno Maru, Yokohama, 10 cs. paper.
Elliott Adding Machine Co., Tai Shan, Yokohama, 13 cs. paper.
Parsons & Whittemore, Inc., Carlsholm, Stockholm, 240 bls. sulphite.
J. Anderson & Co., Carlsholm, Stockholm, 300 bls. sulphite.
J. Anderson & Co., Carlsholm, Gothenburg, 250 bls. sulphite.
The Borregaard Co., Inc., Carlsholm, Gothenburg, 1000 bls. wood pulp.
Perkins Goodwin & Co., Carlsholm, Gothenburg, 127 bls. sulphate; 381 bls. sulphite.
E. M. Sergeant & Co., Carlsholm, Gothenburg, 150 bls. kraft soda pulp.
Draper & Co., Anaconda, Antwerp, 19 bls. thread waste.
Atkinson Haserick & Co., Pr. Harrison, Genoa, 4 cs. paper.
Russel McCandless, Toronto, Greaker, 250 bls. unbleached sulphite.
Russell McCandless, Toronto, Oslo, 900 bls. unbleached sulphite.

BALTIMORE IMPORTS

WEEK ENDING MARCH 7, 1931

Anglo South American Trust Co., Clairton, Liverpool, 190 bls. bagging.
M. Gottesman & Co., Inc., Carlsholm, Stockholm, 600 bls. sulphite.
Price & Pierce Ltd., Carlsholm, Stockholm, 4360 bls sulphite.
Parsons & Whittemore, Inc., Carlsholm, Stockholm, 238 rolls news print.
Parsons & Whittemore, Inc., Carlsholm, Gothenburg, 52 rolls news print.
J. E. Gefael, Carlsholm, Gothenburg, 35 rolls news print.
The Borregaard Co., Inc., Carlsholm, Gothenburg, 50 rolls news print.
Perkins Goodwin & Co., Carlsholm, Gothenburg, 503 bls. sulphite.
Sylvania Industrial Corp., Carlsholm, Gothenbur, 204 bls. sulphite.
Hubbs Corning & Co., Carlsholm, Gothenburg, 410 rolls wrapping paper.
E. M. Sergeant & Co., Carlsholm, Gothenburg, 1196 bls. kraft soda pulp.
Johaneson Wales & Sparre, Inc., Carlsholm, Gothenburg, 2392 bls. kraft soda pulp.
J. E. Gefael, Sagaporack, Stockholm, 131 rolls news print.
Lagerloef Trading Co., Sagaporack, Helsingfors, 137 rolls wood pulp boards, 24 tons.
Price & Pierce, Ltd., Sagoporack, Wallvik, 3780 bls. sulphate, 630 tons; 5520 bls. sulphite, 920 tons.
M. Gottesman & Co., Inc., Sagoporack, Iggesund, 400 bls. sulphite, 80 tons.
Russell McCandless, Riol, Hamburg, 614 bls. ground wood pulp.

NORFOLK IMPORTS

WEEK ENDING MARCH 7, 1931

Darmstadt Scott & Courtney, West Eldara, Antwerp, 139 bls. bagging.

Work of the Import Committee

The Import Committee of the American Paper Industry reports the abandonment of cases carried to the United States Customs Courts involving paper valued at about $15,000 including the following:

Eight importations of vegetable parchment sausage casings classified for duty at 5 cents per pound plus 20 per cent, had been claimed free of duty as sausage casings, abandoned as a result of the decision by the United States Court of Customs and Patent Appeals adverse to the importer, which the Import Committee carried through to a successful outcome after an appeal from the decision of the United States Customs Court; lamp shade bristol classified for duty at 3 cents per pound and 15 per cent as bristol, had been claimed by importer to be dutiable at 10 per cent as board; importation of supercalendered book paper, valued at 5½ cents per pound, weighing up to 100 pound basis, had been claimed to be duty free as standard news print; shipment of black coated paper classified for duty at 5 cents per pound and 15 per cent, claimed to be dutiable at 30 per cent as paper not specially provided for.

New cases have arisen involving merchandise valued at about $25,000 as follows:

Three importations of fancy and three of metal coated papers classified for duty at rates higher than those claimed by importers; five importations of imitation hand made papers classified for duty at 10 per cent more than claimed by importers; nature paper classified for duty as cover paper claimed by importer to be dutiable as book paper; one importation of coated board and one of punching paper classified for duty at 30 per cent, claimed by importer to be dutiable at 10 per cent as board; importations of vegetable parchment paper classified for duty at such, claimed by importer to be dutiable as wrapping paper at 30 per cent; red velour paper imported at Houston, claimed to be hanging paper dutiable at 1½ cents per pound and 20 per cent; classified at 5 cents per pound and 20 per cent as flock coated paper; blue M. G. sulphite imported at Houston at prices which seem to indicate undervaluation; tablet news imported at prices indicating dumping; yellow M. G. sulphite paper partially greaseproof, imported at Galveston at prices indicating undervaluation, if not misclassification.

Dynamic Balancing of Paper Machine Dryers

Dominion Engineering Works, Ltd., of Montreal, Canada, have issued an interesting illustrated leaflet describing "Dynamic Balancing of Paper Machine Dryers." The Dominion Engineering Works considered the following: First—Static balancing cannot determine the correct end of the dryer to which the counter balance weight has to be applied. Second—Nor can this method determine in what varying proportions counter balance weights have to be applied at either end of the dryer.

To deal with this problem the Dominion Engineering Works designed and built the machine illustrated in the leaflet and now in commercial use, with which the exact amount and location of unbalance at each end of a dryer or any roll of a similar type can be correctly determined.

Austin Co. To Build Bates Valve Plant

The contract for the design and construction of a $50,000 plant for the manufacture of Bates Valve paper bags has been awarded to the Austin Company, engineers and builders of Cleveland, by the Elliot Bay Mill Company of Seattle. The plant will be erected at 600 West Spokane street.

The structure will be of one-story, with brick exterior finish, 140 feet wide and 148 feet long. The Austin contract includes, heating, wiring, plumbing and sprinkler system. It will be completed in 40 working days.

FAIRBANKS

OFFERS A NEW

"SPHERO" VALVE

ACCESSIBILITY: **Removal and replacement of Seat Rings and Ball Plug effected without removing the body of the valve from the pipe line.**

ADJUSTABILITY: **Exact adjustment of the Seat Rings accomplished by a simple turn of the wedge adjusting screw.**

OPERATION: **Universal in its application. Quick-opening, requiring only a quarter turn to open or close. Gives a leakproof, tight seal on any service.**

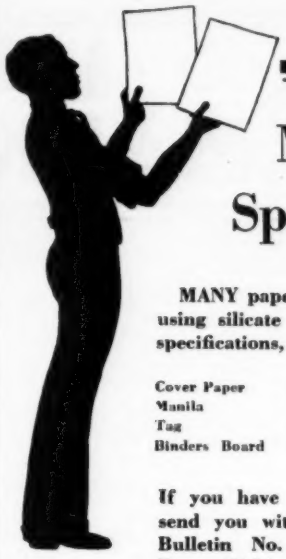
Available in any metal that can be cast. Made in sizes ½" to 8" inclusive; ½" to 4" are lever operated; 4", 6" and 8" are worm-and-gear operated.

Write for Descriptive Bulletin V-103.

FAIRBANKS COMPANY

BOSTON NEW YORK PITTSBURGH

Distributors Everywhere



Meeting Specifications

MANY paper makers know the value of using silicate of soda in papers made to specifications, for instance:

Cover Paper	Post Card	Railroad
Manila	Index	Bristol
Tag	Mimeograph	Boxboard
Binders Board	Book	Chip Board

If you have a contract to meet, let us send you without obligation, a copy of Bulletin No. 6—"Silicate of Soda in Paper Making."

Philadelphia Quartz Co.

1831 BEGINNING ANOTHER CENTURY 1931

General Offices and Laboratory

121 S. THIRD ST., PHILADELPHIA

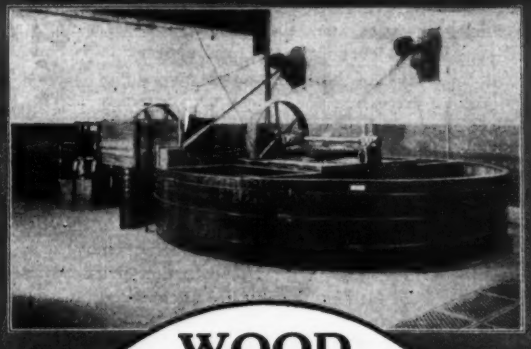
Chicago Office: **205 W. Wacker Drive**

WOOD PULP AGENTS

PRICE & PIERCE, Ltd.,

17 EAST 42ND ST.

NEW YORK



WOOD TANKS

Last a Life-Time

Illustration shows Cylindrical Pulp Tanks for Paper Mills. Equipped with Agitators. Specially constructed or irregular shaped tanks can be supplied and prices quoted on receipt of specifications or drawings. This organization has been building tanks of every description for more than fifty-five years and its products have gone to all parts of the United States, Canada, South America, Europe, Africa and Australia. A large stock of the various kinds of tank lumber is carried in our yards and allowed to air season thoroughly before being used. Our factory is up-to-date in every respect and is completely equipped with the most modern machinery, driven by individual motors. Wood tanks built to your own specifications.

The **HAUSER-STANDER TANK CO.**

Cincinnati, Ohio

New York Market Review

Office of the PAPER TRADE JOURNAL.
Wednesday March 11, 1931.

Conditions in the local paper market were fairly satisfactory during the past week. Demand for most of the standard grades of paper was seasonal. Supplies are moving into consumption at a normal pace for the time of the year. Sales forces of the leading paper organizations are conducting a strenuous campaign for new business. Prices are holding to formerly quoted levels, in most instances.

The news print situation is practically unchanged, despite persistent rumors of consolidations. Statistics gathered by the News Print Service Bureau show that production in the United States and Canada is being maintained at approximately 59 per cent of rated capacity. Contract shipments are going forward in a fairly regular manner. Prices remain unchanged officially.

Trading in the paper board market is more active. Offerings of box board are about sufficient to take care of current requirements. The fine paper market continues to show a steady trend. Tissues are moving in normal volume for the season. The coarse paper market is rather irregular, although demand for wrapping paper is gradually expanding.

Mechanical Pulp

Although the ground wood market was only moderately active during the past week the industry is in a sound statistical position. Due to curtailment of production in this country and abroad, offerings of both domestic and imported mechanical pulp are not excessive and prices are generally holding to the schedule formerly reported, without difficulty.

Chemical Pulp

Steadiness prevailed in the chemical pulp market. Domestic producers and importers of chemical pulp from abroad are becoming more optimistic due to the number of inquiries being received for future account. The contract movement is reported to be fairly satisfactory. No further price changes have been reported of late and the future outlook is more encouraging.

Old Rope and Bagging

Demand for old rope was rather light. Both domestic and foreign old manila rope, however, continues steady. Small mixed rope is moving in fair volume. Old rope prices are generally unchanged. The bagging market is showing signs of improvement. Gunny bagging and roofing bagging are in excellent request. Scrap bagging, however, is quiet at present.

Rags

The domestic rag market continues dull. Cotton cuttings are going forward to the paper mills in moderate volume. Mixed rags are in fair request. Roofing rags, however, are in better demand, with prices slightly firmer than of late. No radical changes were reported in the foreign rag market. With the exception of roofing rags, which are somewhat steadier, the various grades are only in moderate demand.

Waste Paper

Mill interest in the paper stock market is more in evidence and outlook is gradually improving. Offerings of the lower grades are limited, especially folded news and mixed paper, and prices are steadier. The better grades are also exhibiting a strong undertone. Soft white and hard white shavings are in good demand and book stock is firmer than for some time past.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Demand for the various grades is fairly active and should expand materially in the near future, with the approach of the Easter holidays. The movement of supplies into consumption is fairly heavy. Prices are holding to formerly quoted levels.

PAPER INSTITUTE TO BUILD

(*Continued from Page 13*)

3,000 square feet of storage space. The cost is about $6,000, according to E. C. Hilfert, manager, and the contract was awarded to C. R. Meyer & Sons Company.

Marathon Adds to Working Forces

Thirty-seven girls have been added to the working forces of the tissue converting plant of the Marathon Paper Mills Company at Ashland, Wis. The increase was necessary to take care of additional orders, according to B. H. Metternich, mill manager. Another department may be added within sixty days, he said, meaning the employment of ten more persons.

News of the Industry

Dr. William J. Boetcker, of Erie, Pa., spoke to an audience of 400 at the weekly session of the safety school at Neenah, Wis., last week. His subject was "Horse Sense." The chairman of the meeting was Leo Schubart, of the Neenah Paper Company. The school closes with a dinner on March 23.

Stocks of seven principal paper mills in Wisconsin will be listed on the new stock exchange opening at Milwaukee, Wis., March 16. The exchange will be conducted under auspices of Milwaukee Association of Commerce Bonds of a number of paper mills also will be listed for trading.

Companies on the stock list are: Consolidated Water Power and Paper Company, Marathon Paper Mills Company, Mosinee Paper Mills Company, Nekoosa-Edwards Paper Company, Northern Paper Mills, Rhinelander Paper Company, and Tomahawk Kraft Paper Company. Bonds of the Marathon, Mosinee, Consolidated, Nekoosa-Edwards, Rhinelander and Tomahawk companies will be listed, and also those of the Kimberly-Clark Corporation. The last-named company sells its stocks on the New York Exchange.

Tribute to the ability of W. A. Munro, general manager of the Munising Paper Company, Munising, Mich., is paid him in the March issue of the Upper Development Bureau News. Mr. Munro became general manager in 1925, says the article, and is responsible in large measure for the growth of his company so its mills now cover 50 acres of ground. The firm's Caslon and Munising bonds and other trade-marked papers are well known in almost every paper market and used in all parts of the country.

Andrew E. Sjoman, chemist at the Tomahawk Kraft Paper Company, Tomahawk, Wis., died suddenly of a heart attack last week. Mr. Sjoman was a native of Sweden, and came to this country a number of years ago to enter the paper chemistry ranks.

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For 87 Years Makers of Fine Faced Felts For Papermakers

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Special felts to meet every condition.
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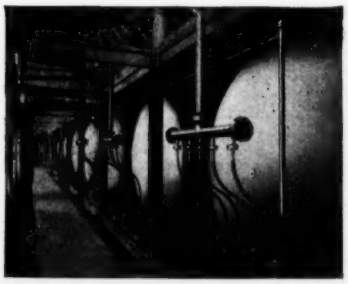

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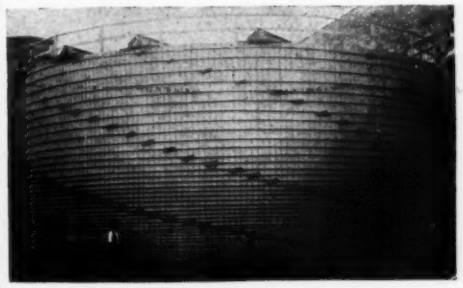

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL.
Wednesday, March 11, 1931.

BLANC FIXE.—The blanc fixe market was moderately active during the past week. Contract shipments were fairly heavy for the time of year. Prices remain unchanged. The pulp is quoted at from $42.50 to $45.00 per ton, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder was fairly persistent. The contract movement was well up to average. Prices are generally holding to previously quoted levels without difficulty. Bleaching powder is selling at from $2.00 to $2.35 per 100 pounds, in drums, at works.

CASEIN.—The casein market was rather quiet. Prices remain unchanged. Domestic standard ground is quoted at 8½ cents and finely ground at 11½ cents per pound. Argentine standard ground is selling at 10 cents and finely ground at 11 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—While the caustic soda market was rather quiet, shipments against contract are moving in good volume. Prices remain unchanged. Solid caustic soda is quoted at from $2.50 to $2.55, while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market was fairly active. Contract shipments are going forward to the paper mills at a steady pace. Prices are holding to schedule. Imported china clay is quoted at from $13 to $21 per ton, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Most of the business transacted in the chlorine market was along routine lines. The contract movement is well up to the average for this time of the year. Prices are steadier. Chlorine is quoted at $2.50 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market was firmer on the Farm Board decision. The grades of gum rosin used in the paper mills are now quoted at from $5.50 to $5.70 per 280 pounds, in barrels, at yards. Wood rosin is now selling at $4.20 per 280 pounds, in car lots ,at southern shipping points.

SALT CAKE.—Some improvement was noticed in the salt cake market. Demand from the mills was more persistent. Prices are holding to schedule. Salt cake is quoted at from 316 to $17; German salt cake at from $15.50 to $16; while chrome salt cake is selling at from $14 to $15 per ton, bulk, at works.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Supplies are moving into consumption at a satisfactory pace. Prices remain unchanged. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.15; and in barrels, $1.38.

STARCH.—Further weaknesses developed in the starch market and prices again declined. Demand for this product was light, although the contract movement was about normal. At the time of writing special paper making starch is being offered at $2.67, in bags; and at $2.94 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Steadiness prevails in the sulphate of alumina market. Supplies are moving into consumption in good volume. Prices are holding to schedule. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues to display a steady trend. Sulphur is still quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton for any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Offerings of talc are sufficient to take care of current requirements. Demand from the paper mills is seasonal. Prices are holding to schedule. Domestic talc is quoted at from $16 to $18 per ton, in bulk; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper
(F. o. b. Mill)

Ledgers	11.00	@	38.00
Bonds	6.75	@	53.25
Writings—			
Extra Superfine	14.00	@	32.00
Superfine	14.00	@	32.00
Tub sized	10.00	@	15.00
Engine sized	6.75	@	11.00
Book, Cased—			
S. & S. C.	5.50	@	—
M. F.	5.25	@	—
Coated and Enamel	7.00	@	10.50
Lithograph	7.50	@	12.00
Tissues—Per Ream—			
White No. 1	.65	@	.67½
Anti-Tarnish M G only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.57½
Kraft	.65	@	.70
Manila	.55	@	.57½
Kraft—			
No. 1 Domestic	4.25	@	5.30
No. 2 Domestic	3.00	@	3.75
Southern	3.00	@	3.75
Imported	6.00	@	7.00
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¾	@	—
No. 2	.11¾	@	—
Bleached, basis 20 lbs.	.11¾	@	—
(Delivered New York)			
News, per ton—			
Rolls, contract	62.00	@	—
Rolls, spot	62.00	@	—
Sheets	67.00	@	—
Side Runs	47.00	@	52.00
Boards—per ton—			
News	32.50	@	35.00
Straw	40.00	@	45.00
Chip	30.00	@	32.00
Binders' Boards	65.00	@	70.00
Standard 85 Test Liner	35.00	@	40.00
Sgl. Mla. Lt. Chip.	42.50	@	—
(F. o. b. Mill)			
Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp
(On Dock)

No. 1 Imported—			
Moist	28.00	@	32.00
Dry	30.00	@	34.00
(F. o. b. Mill)			
No. 1 Domestic	28.00	@	34.00

Chemical Pulp
(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.80	@	4.25
Easy Bleaching	2.35	@	2.60
No. 1 strong unbleached	2.00	@	2.65
Mitscherlich unbleached	2.10	@	2.70
No. 2 strong unbleached	1.90	@	2.00
No. 1 Kraft	1.40	@	1.75
No. 2 Kraft	1.35	@	1.55
Sulphate—			
Bleached	3.00	@	3.50
(F. o. b. Pulp Mill)			
Sulphite (Domestic)—			
Bleached	2.40	@	4.75
Easy Bleaching Sulphite	2.55	@	2.75
News Sulphite	2.35	@	2.60
Mitscherlich	2.50	@	3.25
Kraft (Domestic)	1.60	@	2.75
(Delivered New York)			
Soda Bleached	3.00	@	—

Domestic Rags
New Rags
(Prices to Mill f. o. b N. Y.)

Shirt Cuttings—			
New White, No. 1	8.00	@	8.50
New White, No. 2	7.00	@	7.25
Silesias No. 1	6.00	@	6.50
New Unbleached	8.00	@	8.50
New Blue Prints	5.00	@	5.50
New Soft Blacks	4.00	@	4.50
Blue Overall	6.00	@	6.25
Washables	3.75	@	4.00
Fancy	4.00	@	4.50
Mixed Khaki Cuttings	4.25	@	5.25
Pink Corset Cuttings	6.50	@	7.00
O. D. Khaki Cuttings	5.15	@	5.75
Men's Corduroy	3.00	@	3.50
New Mixed Blacks	3.00	@	3.25
Old Rags			
White, No. 1—			
Repacked	5.25	@	5.75
Miscellaneous	4.25	@	4.75
White, No. 2—			
Repacked	3.00	@	3.50
Miscellaneous	2.30	@	2.50
St. Soiled, White	1.50	@	1.75
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.65	@	1.85
Black Stockings	3.25	@	3.75
Roofing Rags—			
Cloth Strippings	1.25	@	1.30
No. 1	1.25	@	1.30
No. 2	.90	@	1.00
No. 3	.70	@	.80
No. 4	.65	@	.70
No. 5A	.50	@	.60

Foreign Rags
New Rags

New Dark Cuttings	2.15	@	2.40
New Mixed Cuttings	2.25	@	2.50
New Light Silesias	5.75	@	6.25
Light Flannelettes	6.25	@	6.75
Unbleached Cuttings	7.50	@	8.00
New White Cuttings	7.25	@	7.75
New Light Oxfords	5.75	@	6.25
New Light Prints	4.25	@	4.75
Old Rags			
No. 1 White Linens	7.00	@	7.50
No. 2 White Linens	5.50	@	6.00
No. 3 White Linens	4.00	@	4.50
No. 4 White Linens	2.50	@	3.00
No. 1 White Cotton	5.00	@	5.50
No. 2 White Cotton	4.00	@	4.50
No. 3 White Cotton	2.75	@	3.75
No. 4 White Cotton	1.60	@	1.75
Extra Light Prints	2.50	@	2.75
Ord. Light Prints	2.10	@	2.25
Med. Light Prints	1.65	@	1.75
Dutch Blue Cottons	1.90	@	2.10
French Blue Linens	2.65	@	2.75
German Blue Linens	2.25	@	2.40
German Blue Cottons	1.75	@	1.85
Checks and Blues	1.60	@	1.75
Lindsay Garments	1.10	@	1.20
Dark Cottons	.80	@	.90
Old Shopperies	.75	@	.80
New Shopperies	.75	@	.80
French Blues	1.80	@	1.90

Old Rope and Bagging
(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.65	@	1.80
Domestic	1.65	@	1.80
Wool Tares, light	1.30	@	1.40
Wool Tares, heavy	1.35	@	1.40
Bright Bagging	1.30	@	1.35
Small Mixed Rope	.90	@	1.00
Manila Rope—			
Foreign	2.50	@	2.60
Domestic	2.75	@	300
New Burlap Cut	2.25	@	2.50
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers
(F. o. b. New York)

Shavings—			
Hard, white, No. 1	2.75	@	2.85
Hard White, No. 2	2.30	@	2.40
Soft, white, No. 1	2.50	@	2.60
White envelope cuttings	2.95	@	3.05
Flat Stock—			
Stitchless	.90	@	1.00
Overissue Mag.	.90	@	1.00
Solid Flat Book	.75	@	.85
Crumpled No. 1	.60	@	.70
Solid Book Ledger	1.90	@	2.00
Ledger Stock	.80	@	.90
New B. B. Chips	.20	@	.30
Manilas—			
New Env. Cut	2.00	@	2.20
New Cuttings	1.50	@	1.65
Extra No. 1 old	1.25	@	1.35
Print	.50	@	.60
Bogus Wrapper	.50	@	.60
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	1.20	@	1.30
News—			
No. 1 White News	1.70	@	1.80
Strictly Overissue	.40	@	.45
Strictly Folded	.30	@	.35
No. 1 Mixed Paper	.15	@	.20
Common Paper	Nominal		

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.32	@	.34
No. 1	.22	@	.24
No. 2	.21	@	.22
No. 3	.19	@	.20
A. Italian, 18 basis	.38	@	.39
Finished Jute—			
Dark 18 basis	.20½	@	.21
Light 18 basis	.22½	@	—
Jute Wrapping, 3-6 Ply—			
No. 1	.14¾	@	—
No. 2	.13¾	@	—
Tube Rope—			
4-ply and larger	.10¼	@	—
Fine Tube Rope—			
4-ply	.12¾	@	—
3-ply	.13¾	@	—
2-ply	.14¾	@	—
Paper Makers Twine			
Balls	.08¾	@	—
Box Twine, 2-3 ply	.09	@	.10
Jute Rope	.11	@	.12
Amer. Hemp, 6	.29	@	.31
Java Sisal			
No. 1 Basis	.12	@	—
No. 2 Basis	.11¾	@	—
New Zealand Sisal	.11½	@	—
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Twine	.22½	@	.24½

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07½
No. 2 M. F. Book	.05¾	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	5.00	@	5.50
Southern Kraft	3.75	@	4.00
No. 2 Kraft	3.75	@	4.00
Wood Tag Boards	.04¾	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¾
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.35	@	2.40
White Env. Cuttings	—	@	—
No. 1 Soft Shavings	2.10	@	2.15
Ledger & Writings	.70	@	.75
Solid Books	.75	@	.80
Blanks	1.60	@	1.65
Krafts	1.25	@	1.35
New Kraft Cuts	1.35	@	1.45
Manila Env. Cuts	1.50	@	1.55
Ex. No. 1 Manila	1.25	@	1.30
Print Manila	.40	@	.45
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.35	@	.40
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.28	@	.30
No. 2	.20	@	.25
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.08	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.09	@	.20
Book, M. F.	.05	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.09	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.03½	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.03½
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	70.00
News Board	32.50	@	—
Chip Board	30.00	@	—
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00	@	—
No. 2, per ton	70.00	@	—
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill. f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.07	@	.08
New White, No. 2	.06	@	.06½
Light Silesias	.05½	@	.06
Silesias, No. 1	.07	@	.09
Black Silesias, soft	.05	@	—
New Unbleached	.07½	@	.08
Washable, No. 1	.03½	@	.04
Blue Overall	.06	@	—
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.02½	@	.03
Fancy	.04	@	—
New Black Soft	.04	@	.05
New Light Seconds	.02	@	.02½
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05	@	—
No. 2 Mixed	.04	@	.04¼
Corduroy	.02½	@	.03
New Canvas	.07½	@	.08
New Black Mixed	.03	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	3.50	@	4.00
Miscellaneous	3.00	@	3.50
M. G.	5.00	@	—
Thirds and Blues—			
Miscellaneous	1.50	@	1.75
Repacked	2.00	@	2.25
Black Stockings (Export)	3.80	@	4.00
Roofing Stock—			
Foreign No. 1	1.15	@	1.25
Repacked	.80	@	.90

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	2.75	@	3.00
Sisal Rope	1.25	@	1.50
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1. New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.65	@	2.75
No. 2 Hard White	2.30	@	2.50
No. 1 Soft White	2.25	@	2.50
No. 2 Soft White	1.40	@	1.60
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.60	@	.70
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.05	@	1.25
No. 1 Books, heavy	1.00	@	1.15
No. 2 Books, light	.90	@	.95
No. 1 New Manila	2.15	@	2.30
No. 1 Old Manila	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.30	@	1.35
Common Paper	.25	@	.35
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.35	@	.40
Binders Board, Chip	.35	@	.45
Corrugated Board	.50	@	.60
Overissue News	.40	@	.45
Old Newspaper	.25	@	.30

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag Content	.15	@	.30
All Rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¼	@	.05½
No. 2 Kraft	0.3½	@	.04¼
(F. o b. Boston)			
Southern Kraft	.03¼	@	.03½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print, rolls	61.50	@	—
Straw Board, rolls	.009	—	@52.50
Straw Board in Sheets, basis 35s to 70s	—	@	50.00
Filled News Board	32.50	@	—
Chip Board	30.00	@	—
Chip Board (Creasing)	32.50	@	—
Single Manila Lined Chip	45.00	@	—
Single White, Patent Coated News Board Bender, No. 1	60.00	@	75.00
Single White, Patent Coated News Board Bender, No. 2	55.00	@	65.00
Wood Pulp Board	75.00	@	80.00
Binder Boards	67.50	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	—	@	2.40
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.60	@	.65
Solid Ledger Stock	—	@	1.75
No. 1 Books, heavy	.75	@	.80
No. 1 Books, light	—	@	.65
Crumpled Stitchless Book Stock	—	@	.70
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	—	@	1.00
White Blank News	1.50	@	1.60
Kraft No. 1	—	@	1.10
Manila	.80	@	.90
No. 1 Mixed Paper	—	@	.16
Overissue News	—	@	.40
Old Newspapers	.25	@	.30
Box Board, Chip	.16	@	.20
Corrugated Boxes	.35	@	.40

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.80
Domestic	1.60	@	—
Manila Rope—			
Foreign	2.25	@	—
Domestic	2.50	@	—
Transmission Rope	1.75	@	—
Mixed Strings	—	@	.70
Jute Rope	—	@	1.05
Jute Carpet Threads	.90	@	1.05
Bleachery Burlap	—	@	3.25
No. 1 Scrap Burlap	—	@	1.25
Scrap Sisal	1.35	@	1.40
Scrap Sisal for shredding	—	@	1.50
Wool Tares, heavy	1.30	@	—
New Burlap Cutting	1.75	@	2.00
Australian Pouches	2.50	@	—
Heavy Baling Bagging	—	@	1.75
Paper Mill Bagging	—	@	.85
Ragging No. 2	.50	@	—
No. 1 Burlap	—	@	3.50

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.06½	@	.07
New White No. 2	—	@	.06
Silesias No. 1	.06	@	.06¼
New Unbleached	—	@	.08
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.50	@	2.75
Thirds and Blues—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	.75	@	.80
No. 2	.65	@	.70
No. 3	.50	@	.60
No. 4	—	@	.60

Foreign Rags
(F. o. b. Boston)

Dark Cottons	—	@	.75
New No. 1 White Shirt Cuttings	7.25	@	7.50
Dutch Blues	—	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.65	@	1.75
Old Linsey Garments	.85	@	.95

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.09¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.09½	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.12½	@	7.60
No. 2 M. F. (carloads)	6.90	@	7.35
No. 3 M. F. (carloads)	6.65	@	7.15
No. 1 S. C. (carloads	7.60	@	8.10
No. 2 S. C. (carloads	7.35	@	7.85
No. 3 S. C. (carloads	7.12½	@	7.60
No. 4 S. C. (carloads	5.95	@	6.40
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	50.00	@	—
Sulphite, news grade	70.00	@	—
Sulphite, bleached	75.00	@	75.00
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.80	@	—
Soft White	2.60	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.10	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writings	—	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.80	@	—
Kraft	1.90	@	—
News and Scrap—			
Strictly Overissue	.70	@	—
Strictly Folded	.70	@	—
No. 1 Mixed Paper	.60	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09¼	@	.10
Fancy Shirt Cuttings	.06	@	.06½

To

THE

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PAPER TRADE JOURNAL

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Want and For Sale Advertisements, 93-94

HOW VALUE IS ASSURED IN EVERY HAMILTON FELT

A silk handkerchief is washed no more carefully . . . . .

THE washing or scouring process can make or break the quality of the fibres. Harsh soaps can ruin the fibres, in turn making them harsh and brittle, sapping their life and strength.

Every pound of wool that enters into the manufacture of a Hamilton Felt is washed as carefully as your wife washes a piece of fine lace or a silk handkerchief — just a gentle sousing up and down in a solution of mild soap. This soap is a special blend, made for our purpose.

This scouring is an expensive process. Not only must it be carefully done with expensive materials, but in taking the oil and grease and dirt out of the wool we lose from 20 to 60 per cent of the weight.

What was 100 pounds of wool is now only 40 to 80 pounds. But cost is never a factor when the quality and strength of a Hamilton Felt are at stake. It saves in the end because of the greater strength and longer life of a Hamilton Felt.

You will see how it saves the first time you use a Hamilton Felt.

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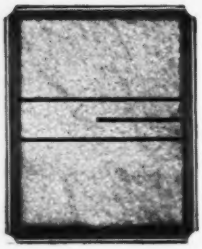
Hamilton, Ohio
Miami Woolen Mills, Est. 1858



Hamilton Felts are marked by two blue lines full width of the felt and by one shorter blue line midway between them.

Hamilton Felts